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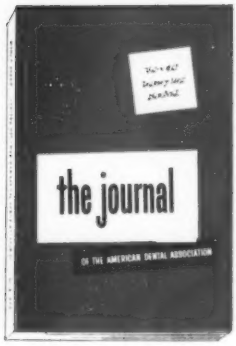

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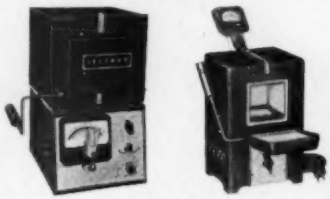

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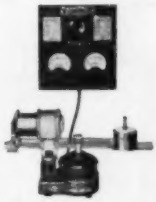

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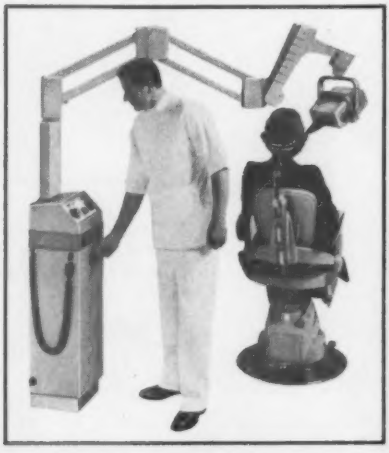

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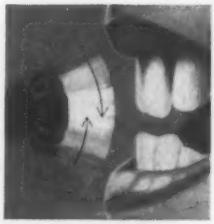

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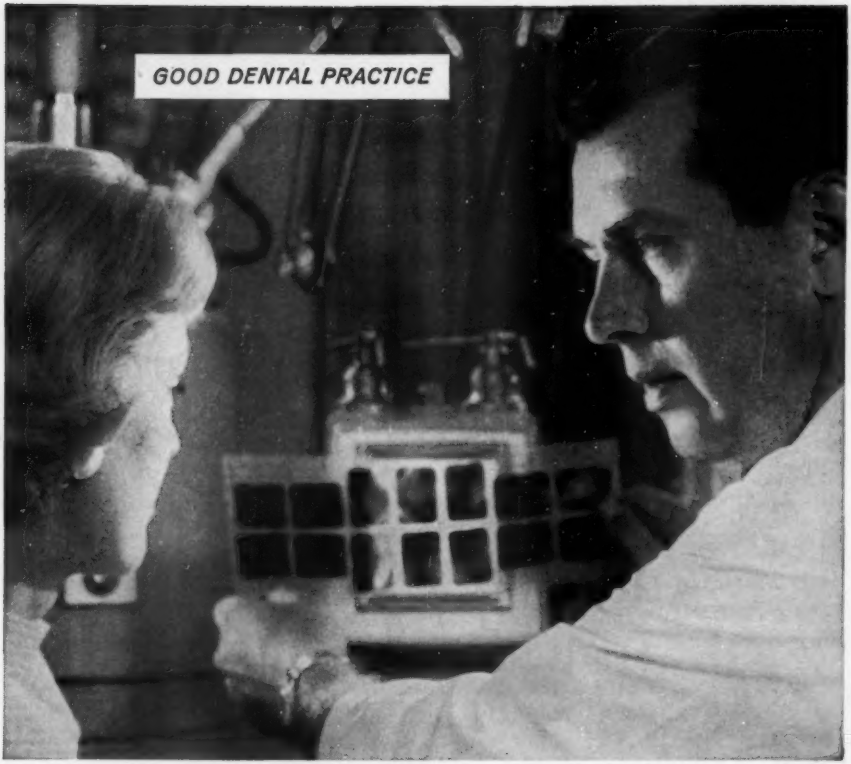

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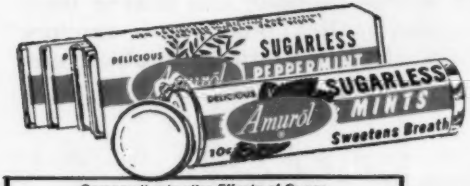

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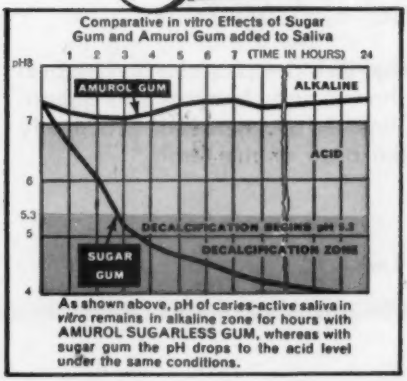

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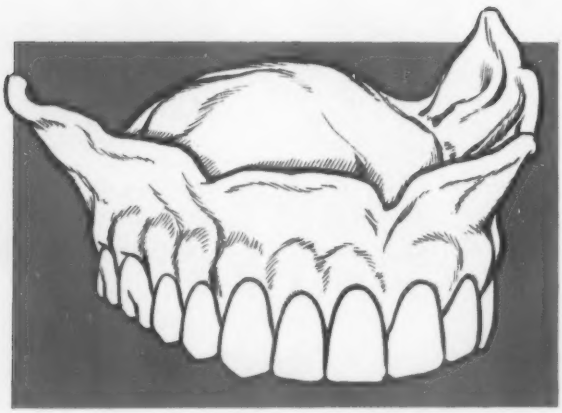

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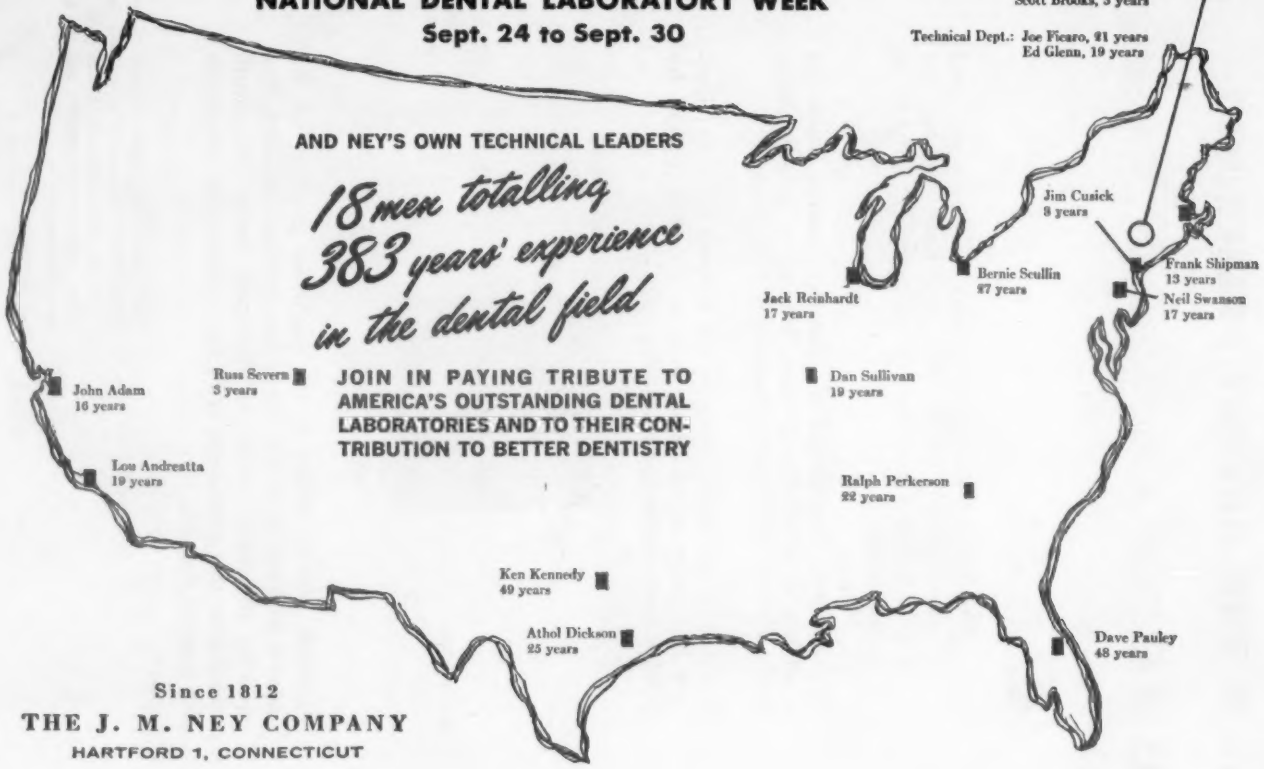

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Time to walk boldly

Donald R. McNeil, Ph.D., Mesa, Ariz.*

In the past ten years, Dr. McNeil asserts, the fight over fluoridation has shifted from the scientific to the political arena. The evidence regarding the benefits and safety of fluoridation has won scientific acceptance everywhere but in the mind of the public. The benefits of fluoridation can be seen in the healthier teeth of those who have been reared in communities providing fluoridated water. These benefits, however, continue to be ignored by the opposition, whose forces have become unified, for the most part, beyond the reach of scientific argument and evidence. The problem now faced by many communities in their efforts to achieve fluoridation is essentially political. More biochemical experiments or more endorsements by scientific bodies will not help. Individual dentists, physicians and public health officials must end their apathy and must accept their professional responsibility to join the fight for fluoridation.

The health professions are being hurt by the defeats of fluoridation at the polls. Dentists and physicians, maintains Dr. McNeil, must place their professional prestige on the line in the campaign for fluoridation. Lay leaders need the professional men, as dispensers of scientific information and as enthusiastic spokesmen for the cause. It is time to campaign vigorously against those who would deny the benefits of fluoridation to the nation's children.

Such a campaign, suggests Dr. McNeil, should include: a fluoridation conference at the White House level; training institutes for public responsibility within the professions; more U. S. Public Health Service funds to finance the campaign; more publicity on the healthful effects of fluoridation; community-wide education to let the truth catch up with the untruths; firm pressure on elected officials; well-planned community organization down to the precinct level, and a vigorous national campaign to benefit the many local campaigns. Such a program will take time, money, energy and perseverance, but it will insure victory.

The meeting here today to discuss the problems of fluoridation is reminiscent of a similar gathering ten years ago in the offices of the U. S. Public Health Service. Those of you familiar with the long fight for fluoridation will recall the incident.

It was at a meeting of the state dental health officers in June 1951. John Knutson of the U. S. Public Health Service had asked Wisconsin's state dental health officer, the late Francis Bull, to present some "Do's" and "Don'ts" which other dental directors should observe in fluoridation campaigns.

Dr. Bull regarded the meeting as private and proceeded to give, on the basis of his extensive experience with the city councils and town boards, some "off-the-cuff" tips to his colleagues. He spoke frankly and with great vigor, for Dr. Bull was a vigorous man. His "Do's" involved organization of community meetings, methods of obtaining good publicity, building an educational program to undermine in advance the rash of wild charges certain to be raised against fluoridation.

When he got around to his list of "Don'ts" he shot from both hips. Promotion of fluoridation, he said, should not openly come from state officials, but from the locality. Don't use the negative approach. Don't let the people vote on it. Don't let the waterworks people confuse the issue. The list of don'ts was long.

Dr. Bull was unaware of the stenographer in the audience taking a verbatim account of the meeting, and later the opposition obtained a copy and from it built their case against the "promoters of fluoridation."

By quoting some of Dr. Bull's candid and vivid phrases such as "Don't let the people vote on it," or "knock down the opposition," or "when they say yes, you say no," they emphasized the "deceitful nature of the bureaucrats" who are trying to thrust fluoridation on the American people. By excerpting certain sentences, they made the entire conference sound like a devious plot to circumvent the will of the people. Dr. Bull, and many another proponent of fluoridation, were embarrassed by the interpretation of the meeting, for there was no single charge more widely disseminated throughout the United States during those years.

Today I should like to use this famous 1951 meeting as my control unit to demonstrate the similarities and the differences between the fluoridation struggle then and the fluoridation struggle now.

FLUORIDATION STRUGGLE TODAY

It is easy to draw historical parallels between the 1951 meeting and the one today. As they were in 1951, we are in 1961, gathered to discuss the problems of acceptance by the American people of one of the most significant and far-reaching public health measures in our history. We are here to analyze, criticize, and to offer constructive ideas for the future. Like those pioneers of a decade ago, we agree that the evidence is in, that we should somehow spread the word to more people than we have in the past.

As for the opposition, the general nature of the groups and the types of arguments are the same now as then. There are physicians and dentists still opposed; there are health foods advocates, chiropractors, and pamphleteers who hope to profit from their campaigns; there are anti-Semitic propagandists, there are those who see a Communist plot in every fluoridated drop of water, and there are those such as Christian Scientists, who sincerely argue against fluoridation on religious and constitutional grounds.

The arguments against fluoridation haven't improved much over the ten years either. Opponents still charge that fluorides produce a vast array of ill effects on the human body, that profluoridationists distort statistics, that fluoridation violates individual liberties, and that the U. S. Public Health Service is promoting socialism.

One other similarity comes to mind as we compare the two meetings. As with Dr. Bull, every word uttered here today will be microscopically examined under the out-of-focus lenses of the fluoridation opponents. Their jaundiced eyes will see hidden meanings, discover inhuman plots against the American people, and find crass admissions of our guilt. When they disclose their findings to the American people, I predict they will lift passages out of context, overemphasize the points that fit their prejudices—distort our logic, our facts, and our statistics—and omit whatever fails to support their foregone conclusions. In short, the twelfth National Dental Health Conference will be made to conform to the antifluoridationists' preconceived ideas as to the nature of our efforts. Expect no mercy from them.

To understand the differences between that small gathering ten years ago and the one today, it may be helpful if we fasten the two meetings to their proper historical pegs. Let me review briefly.

HISTORICAL REVIEW

Frederick S. McKay's 29 year search for the cause of mottled enamel resulted in the discovery in 1931 of the guilty agent, fluorine. From there, the U. S. Public Health Service took over and by 1944, after a series of toxicity studies, to make certain there would be no harmful side effects, the Grand Rapids fluoridation experiment began.

In Wisconsin, the home of Progressivism 40 years earlier, a zealous group of dentists, led by John Frisch and Dr. Bull, decided in 1944 that wholesale fluoridation was immediately necessary.

Despite Wisconsin's record of 50 fluoridated communities by 1950, the U. S. Public Health Service and the American Dental Association reflected the scientific conservatism of most researchers, dentists and public health officials in the country.

On scientific grounds, between 1945 and 1950 they rejected the Wisconsinites' arguments for immediate universal fluoridation.

This is an extremely important point, for it helps us understand the background of that famous 1951 meeting, so widely misquoted by fluoridation opponents. Dr. Bull had been in the forefront of the struggle since 1944 and represented the "fluoridate now" groups. The U. S. Public Health Service endorsement was less than a year old and the American Dental Association's official approval a little more than six months. The national organizations were feeling their way. Many states and localities were completely uninformed about the issue, to say nothing of the rank-and-file dentist, physician, public health worker, and the ordinary citizen. Many reputable scientists regarded the plunge into the cold waters of universal fluoridation as possibly an overstimulating prebreakfast swim in the muddied waters of a lake of which they didn't even know the depth.

"Let's wait and see," they said, with justifiable scientific caution. This was the essence of the famous Delaney Committee recommendation more than a year later.

IGNORE WILD CHARGES

For three years after American Dental Association approval in 1950, there was a strong feeling among its officials that the Association should not, in the words of the secretary of the Council on Dental Health, "dignify the efforts of the opposition" by answering every wild charge. It would, he said, "be best to ignore them completely." In 1952 he announced that after a "great deal of discussion on strategy," the A.D.A. would devote itself to distributing authentic information and supporting health officials. Further pressure by the American Dental Association might stimulate a more vigorous campaign on a national basis. A year later, his successor advised dental societies to

give "professional and technical leadership" and let civic organizations do the promotional work.

In the U. S. Public Health Service, the drive behind the agency's endorsement was nominal. In a few states, local public health officials were enthusiastic leaders; in others, they took the attitude that fluoridation should wait until the people were ready for it.

The American Medical Association, considering fluoridation a dental matter, went on record in 1951 for fluorides and left the issue pretty much alone. Throughout the country, there was a feeling on the part of the powerful scientific bodies that the opposition would soon fade away, that the ridiculous charges would eventually prove self-defeating, that the public would soon awaken, and that the fluoridation issue would be settled, quietly and sanely, in the best traditions of our American democracy.

It was also quite different in the opposition ranks then; for example, when some Wisconsin physicians and dentists reflected a cautious attitude, one of the most effective opposition groups of the future — the chiropractors — condemned the medical and dental professions for withholding the benefits of fluoridation from the populace!

The strategy of the opponents was often confused and contradictory, too. It may seem strange now, but opponents of fluoridation in some towns used to condemn referendums—obviously because they felt they could defeat fluoridation through their elected representatives. You still hear faint bleatings of this position when a town has accepted fluoridation by ballot.

In short, then, the lines had not yet been drawn firm. Theories had not jelled. The issue had not yet been sharply drawn, either within the ranks of the professions, the opposition groups, or the general public.

Still—with the U. S. Public Health Service and A.D.A. endorsements in 1950 and American Medical Association approval in 1951—the fluoridation movement spread. In 1951, 225 communities initiated fluoridation; the next year, 347.

But with the Delaney Committee report espousing "Go slow on fluoridation," and its subsequent publicity in national magazines, together with the rapid amalgamation of opposition groups, fluoridation tapered off. Antifluoridationists began winning more battles than they lost and though the number of cities and the number of people drinking fluoridated water increased—approximately 42 million now—the increase was at a decreasing pace.

It is paradoxical in many respects that the more evidence supporting controlled fluoridation which proponents gathered, the less likely they were to win their battles in the local communities. The opposition consolidated, resistance stiffened, and finally the antis took the offensive; many communities which had begun fluoridating early were told by the voters to cease and desist.

Hindsight is a marvelous power, as I, a historian, know full well. But the essence of historical appraisal is to understand the feelings and attitudes of people involved in significant historical events at the time. The foregoing résumé of events in the postwar period should in no way be interpreted as a critical Olympian judgment of the actions and policies of the people who have preceded us. If history can offer guidelines for the future, it is not in the sense of transplanting the past to the present and saying, "I told you so." Rather, history should bring an understanding of past events in such a way as to deepen our understanding of the forces framing today's problems, and to offer suggestions for sensible, responsible conclusions.

So let us talk further of the differences between the two meetings of '51 and '61. In the first place, today we have at our disposal the results of the original 15 year experiments. More than that, we have

hundreds of additional fluoridation studies on everything ranging from systemic effects to corroded water pipes. Scientific caution may have been justifiable ten years ago, for the issue was somewhat cloudy. But to the best scientific minds, and to the admirably cautious councils of almost every scientific body in the land, the evidence on fluoridation is in.

If there were a shadow of a doubt, now or in the future, as to the safety of fluorides, these councils would be the first to call a halt. One inescapable fact emerges from the welter of charges raised by opponents. There is not a single shred of scientific evidence indicating that fluorides at the proper levels do anything else than what the proponents say they do. Fluoridation is approved. It is approved everywhere but in the public mind.

Secondly, the situation today differs from ten years ago in that we have now had experience. We have seen with our own eyes the children who have grown to adulthood drinking water with fluorides added. We can physically see and feel the decayless teeth which were a mere promise ten years ago.

Thirdly, more than experience, we have now had experiences. We have been stunned and shocked at the irresponsible charges raised by some of the antifluoridationists. We do not want to believe that wild-eyed fanatics can, with straight faces, link fluorides to chemical lobotomies, a bureaucratic socialist plot, a Communist plot, a Jewish plot. It is difficult to perceive our antagonists as men and women of good will when they flamboyantly resort to the skull and crossbones, pictures of deformed children in wheelchairs, and 30 year old pictures of mottled teeth which were the result of 12 or 14 ppm fluorides instead of the 1 ppm being advocated.

We scoff at a physician who will diagnose fluoride poisoning by mail, and are flabbergasted that such a man has thousands of followers in the country, that he is one of three or four national so-called "experts" on fluoridation who roam the country. We look with dismay at our fellow citizens who can bring themselves to swallow, under the guise of scientific verbiage, a mass of silly, stupid statements. And we are bewildered and frustrated with experiences of threats of boycott, vicious personal slander campaigns, and outrageous, sometimes scurrilous lies which opponents resort to in the closing days of a referendum. Our experiences have created a different atmosphere.

OPPOSITION IS UNIFIED

The fourth change that has taken place since 1951 is the consolidation of the opposition forces. I do not believe that there is a single master voice behind all opposition groups. When you break them down, you find that opponents rally to the cause for a variety of reasons. But they are no less unified because of varying motives. At the moment, the alleged "scientific experts" seem to dominate the field, though not entirely. Dr. George Waldbott and Dr. Frederick Exner, at great personal and financial sacrifice, I am sure, crisscross the country in answer to the strident pleas of local opposition groups. Their statements become the fodder for thousands of Mimeograph machines grinding out the half-truths and distortions about fluoridation around the country.

In any profession, there are dissidents, and opponents have capitalized on the situation. The *National Fluoridation News,* edited by Dr. Waldbott's wife, has a list of scientists who have, according to her, "openly questioned the wisdom of adding fluorides to the water supply." Eighteen are from foreign countries, 18 are from the United States. Of the Americans, significantly, 2 are dentists, 1 is a biochemist, 1 a pharmacologist, 1 a nutritionist, and 13 are physicians. Mrs. Waldbott did not put her husband's name on the list. But even without it, the percentage of dissenters in the scientific professions sounds rather small.

She also submits a carefully selected bibliography of fluoridation writings. At first glance, the 118 entries look impressive, and one might conclude that the science professions are split asunder over this issue. But a second look at the bibliography reveals the true character of the distortions. Sixteen entries are dated in the 1930's, before anyone even suggested putting fluorides in the water. Moreover, those early papers, plus a good share of the later ones on the list, are dealing with fluorides at extremely high levels and have nothing to do with the present dilemma. And the humorous shockers on this list are the names of H. Trendley Dean and Gerald Cox, both profluoridationists to the core, who wrote articles about fluorosis caused from high fluorine waters back in the '30's. Here is an example of using history with a vengeance.

TACTICS OF OPPOSITION

We could talk about lies and distortions all day, but I'd like to settle for two examples of the tactics of the opposition. Last year, opponents were charging that President Eisenhower refused to drink fluoridated water. The White House physician finally laid this canard to rest with the statement that because the President traveled widely, it was felt he should imbibe a uniform type of water. Therefore, bottled water was carried from state to state, from country to country in his travels. But the President himself told a press conference that he drank tap water at the White House. Was this statement sufficient? No. The antis spread the charge in a hundred newspaper columns and pamphlets.

Another example of the chicanery of the opponents: One of the most repeated charges these days concerns the American Association of Physicians and Surgeons with an estimated 15,000 members. Opponents claim the association has rejected fluoridation. Track this misrepresentation to its source and you find that the association, founded to combat socialized medicine, infringements on constitutional rights and mass medication, resolved on October 8, 1955 that all compulsory mass medication be condemned. On April 12, 1958, it reaffirmed this principle. In May, 1958 in the association's official newsletter, Dr. Mal Rumph, president, specifically denied the two resolutions concerning fluoridation. "Both resolutions dealt with principles and had no relationship whatsoever to the scientific aspects." One association member said the association was completely opposed to artificial fluoridation; Dr. Rumph's answer: "This is not a statement of fact." Moreover, the association has denied its rostrum to Dr. Waldbott. Despite these facts, the action of the association becomes an attack on water fluoridation, but only after the opponents have strained the statement through their prejudiced minds.

The scientific arguments are proving popular, but there is a cross-fertilization of charges between the antis that demonstrates how effectively they have coalesced. A single opponent in a community can, with one postcard, be deluged with material from a variety of sources, all of them consistently harping on the same themes, the harmfulness of fluorides, the unconstitutionality of fluorides, the plot of the U. S. Public Health Service to use fluoridation as the first step toward socializing medicine.

And now we are faced with the diligent, organized activity of that organization so often in the headlines today, the John Birch Society. In the March, 1960 John Birch Society *Bulletin,* Robert Welch, the founder, wrote how Society members beat fluoridation in Council Bluffs, Iowa, by a barrage of letters and phone calls to the editor of the newspaper and to city officials. In May, 1960 Welch complimented John Birch Society members who took a leading part in the successful fight against fluoridation in Alameda, Contra Costa, and Marin County, California. Said Welch, "It was certainly

most encouraging to ourselves."

I have argued the case of fluoridation with a John Birch Society member in Phoenix and in addition to being anti-fluoridation, this particular member is also out to abolish the income tax, the United Nations, urban renewal, the city manager, and Communist influence wherever it rears its ugly head. You can see that we have our work cut out for us.

All these charges may be similar to the ones which were just beginning to be raised ten years ago, but the effectiveness and the unity of the approach of the antis is far greater now than in 1951.

The fifth and last change since 1951 must lead us to an assessment of the advocates of fluoridation.

THE PROBLEM IS POLITICAL

We cannot escape the fact that fluoridation has been wrested from the hands of the scientist and deposited squarely in the middle of the political arena. Fluoridation is now a political problem. We are striving to reach the minds of men so that they will take political action. A thousand, or ten thousand more experiments will not help. A dozen, ten dozen, or fifty dozen more pronouncements by scientific leaders will not provide the solution. Ten bales, sixty bales, or 60,000 more bales of literature on the subject will not be sufficient to win the contest.

As a historian-observer, standing just outside the pale of the scientific professions, I am aghast at the effectiveness of this vocal minority. It seems incongruous to me that a small, irresponsible, but well-organized group, comprised of a wide assortment of types, with conflicting motivations and several gradations of veracity, can bring three of the most influential and scientific bodies in the land to a stumbling halt.

If I seem harsh in my estimation, it is only because I have examined at close range the futility and ineptness of many proponents. I have seen, and understood, the reluctance of citizens to become embroiled in a vicious hate campaign often unparalleled in the history of the community. I have sympathized with the plight of the local leader who is suddenly confronted with a vast array of lies, distortions, exaggerations, statements hoisted out of context, trickery, deceit, and duplicity. I understand the nature of the public lie and the difficulty of ever catching up with it in the public mind.

MUST END ATTITUDE OF DRIFT

But there must come a time in the course of human events when we, as responsible citizens, and you, as scientists and professional men and leaders, must stand up and be counted. We must (and I say this without any ugly connotations) fight fire with fire. We do not have to resort to opposition tactics of warped logic and perversion of fact. We can use truth, with dignity, and we can be positive in our approach.

I do not for a moment condemn past actions of the professional organizations. Each generation of administrators must make its decisions in light of what it considers to be the needs, demands, and public temper of the people at that time.

But the situation has so markedly changed in the past ten years that it is now time, I feel, to end this fight for fluoridation once and for all. I do not need to remind you that the wild antifluoridation charges against the dental, medical, and public health professions, have impact in areas far beyond the limited one of adding fluorides to water supplies. Physicians certainly know that chiropractors are thriving on this opposition to fluoridation and undermining public confidence in the medical profession in other areas. By posing as guardians of the public health in this matter of fluoridation, opponents use it to arrogate to themselves the mantle of righteous protector in other fields, including medical treatment, the-

ory, diet control and political behavior.

Before presenting any criticisms of the professional man I should like to stress this fact: There are dentists, physicians, public health officials and laymen who have given lavishly of their time, money, wisdom, and energy to bring the benefits of fluoridation to their communities. One can tick off many cities where the professional man has fought with every resource at his command, and even if defeated, he knows, and his community knows, that he has admirably met his responsibilities as a citizen and as a professional leader. No appraisal of the situation would be truthful without acknowledging this.

However, my argument with the professional organizations, their constituents, and the community leaders, stems from what I conceive to be an over-all attitude of drift.

I don't have to be a member of the dental profession to be incensed at the bemused tone of newspaper articles which good-humoredly report that the American Dental Association, the American Medical Association, U. S. Public Health Service, and practically every other scientific, professional, educational, and governmental agency in the nation has approved fluoridation, yet they continue to be whipped at each election by a small, vocal, belligerent minority—the 45 losses out of 50 referendums last November 8 being a splendid example. But how many dentists and physicians and public health officials get upset about these facts?

I am equally outraged when I read or hear of a community turning down fluoridation because of the apathy and futile countermoves of the local professional men who should be in there nailing down the lies, organizing the community, providing dynamic leadership. I maintain that as professional leaders and as spokesmen of science, the dentist, the physician and the public health official cannot escape their public responsibility to fight with every resource at their command the vicious half-truths, outright lies, and devious tactics of the misguided, often dishonest, opponents. For those sincerely following their charlatan leaders, the professional man has a major educational campaign before him. There simply comes a time when the dentist, physician, public health worker, and community leader has to face scorn, ridicule, and threats to put across what he believes in. He has a vast amount of community prestige and on some issues he must be prepared to risk it.

TOO MANY PROFESSIONAL MEN ARE APATHETIC

Actually, though, not many professional men run away from battle. Rather, they ignore it. I find a vitiating apathy in the ranks of professional men. I have found dentists and physicians who do not even know how to spell the word fluoridation. And upon questioning, they reveal an appalling ignorance of the single, most effective, most universal public health measure the dental profession has ever had at its disposal.

And I contend this apathy creates resentment in the public mind. It is not long before the public will take a second look at the professional man's pronouncements in other fields. An indifferent dentist or physician who is content to let others bear the burden of progress will soon find himself ignored as a man of little consequence in the community.

The sad part of the story, though, is how much the lay leaders need the professional men. Not just as educators, as dispensers of information, not as holier-than-thou advisers. But as workers in the ranks, as leaders, as enthusiastic, well-informed spokesmen for the cause. And often, too often, the layman does not receive much more than nominal cooperation from his professional allies. The end result is defeat and untold harm to the professions.

Since political activity is the strategy

of the opposition, then I argue that the professions had better acknowledge it and devise means to meet their opponents on their own ground. You may believe that the public is not competent to judge a scientific measure such as fluoridation, but the fact remains that the issue is no longer strictly a scientific one. The issue is political. It is a matter of public policy.

In the final analysis, every scientific measure in one shape or another, rests on public approval, whether it be voting tax monies for research, private donations for scientific experiments, or public policies pertaining to the welfare of the people. The professions should acknowledge this and prepare themselves for the political struggle.

THE STRUGGLE AHEAD

Where do we begin to reinvigorate the fluoridation movement? I say, start with the dentist, for it is his responsibility. Make something more of him than an adviser and informal kit peddler. I know that the dental profession sees as one of its basic problems the need for an increased sense of social consciousness on the part of the rank-and-file-dentist. I see no better way to change attitudes—the public's attitude that the dentist is a technician; the dentist's reluctant attitude toward increased participation in and acceptance of his civic responsibilities—than to get the dentist deeply immersed in the fluoridation struggle until he and his co-workers emerge victorious. The individual, the community and the profession will be better because of the effort.

Victory requires the best and most sturdy efforts of not just the American Dental Association, for it is only as strong as its constituents make it, but the state societies, the regional and local societies, and lastly, the individual dentist. They should all get excited about the continuing losses of fluoridation fights around the nation.

It is time, I think, to declare war against those who would deny the benefits of fluoridation to our children. A thoroughly aroused dental profession, I believe, could provide the leadership to win.

Two other professional groups are equally important. The physician is the dentist's ally and should perform accordingly. Any separation of health matters into spheres of influence between the medical and dental professions is to be deplored when the issue has become political.

The public health official is the third member of the triumvirate so necessary for success. The push should extend from top to bottom, from the Surgeon General's office down to the local public health official. And here, it seems to me that President Kennedy and Secretary Ribicoff must aid the cause with unequivocal endorsement. Already we are hearing the familiar charge: President Kennedy won't drink fluoridated water. Strong statements by the Secretary and the President are badly needed.

SHOULD STUDY CAUSES OF PUBLIC RESISTANCE

In addition, the Public Health Service should do more than prepare press releases and keep statistics. It should finance an increasing number of pertinent political and sociological studies to determine the causes of public resistance; it should provide a vast amount of assistance through seminars or short courses, local health officials, professional people and community leaders in a manner to guarantee a higher percentage of victories.

These three professional groups—dental, medical, and public health—can initiate a renewed interest in extending the fluoridation horizons. Once begun, the movement should spread and pick up strength.

Ten years ago, referendums were the exception, now they are the rule. Local efforts will decide the over-all campaign,

but there must be concerted action on every front.

There can be a fluoridation conference at the White House level; training institutes for public responsibility within the professions; more funds allotted by the U. S. Public Health Service to finance the battles. There can be more adequate representation on public rostrums and in the local and national studies of radio and television networks. There can be an insistence that the daily and weekly press accept the responsibility of checking out the facts on fluoridation before publishing erroneous information in their news columns. Proponents can make news, and take it to the newspapers, rather than wait for the newspapers to come to them for "the other side." There can be a steady hammering of the positive facts about fluoridation in all of the mass media. In short, there can be an all-out effort to publicize and promote fluoridation, at every level, by the awakened professions.

The professional men will need their community leaders. But they should help organize the leadership of civic clubs, fraternal organizations, churches, P.T.A.'s; they should obtain the active help of businessmen, industrial leaders and labor groups. As a nonpartisan issue, fluoridation should be supported by both political parties.

Then there should be a community-wide educational campaign of sufficient duration to let the truths catch up with the untruths propagated by the opponents. And this means sending out informed dentists and physicians to tell the story to groups. Too often opponents have massacred a well-meaning but skimpily informed dentist or physician. The dentist and the physician should also, I believe, not be afraid to carry the fluoridation message to their patients. Finally, firm pressure must be brought to bear on the elected officials who will initiate fluoridation, and here the professional man has a tremendous amount of prestige and respect to offer the cause. But if the measure is forced to a vote, then the professional men have to follow through. They cannot afford to run away from a vote. There should be organization—tough, knowledgeable, well-planned organization, right down to the precinct level. Mothers of children who will benefit immediately should resort to political devices—coffee hours, doorbell campaigns, and get-out-the-vote crusades.

The arguments of the opponents should be anticipated and the proponents, now unified as to purpose and vigor, should answer the wild charges point by point and then leap to the attack with affirmative statements of the benefits of fluorides. In short, the war should be carried out on a thousand fronts simultaneously.

NATIONAL CAMPAIGN NEEDED

I can anticipate some of the answers to the comments presented here.

Such a vigilant, hard-hitting campaign would only heighten passions and confuse the public, some will say. A decade ago, I might have agreed with this position, but not now. I am sympathetic to those people in cities like Cincinnati who have lost their second round with the voters, but I would argue that a national campaign in connection with their local one, might have changed the outcome. The many local campaigns must be tied directly to a strenuous national campaign.

The time for concerted action is at hand, and the only way out of this wilderness of confusion, doubt, and obfuscation, is action . . . action at every level. We will not, I maintain, slip fluoridation quietly in the back door. That day is past. We must go around to the front door. It is time to walk boldly.

There will be criticisms, too, that such a program as here outlined would cost untold amounts of money, time and energy. I agree. It will take time, money, and energy. Also planning, wise counsel,

zeal, perseverance and unfailing courage as well.

In those communities where the dentist, and the physician and the public health official have worked together, provided the leadership, stimulated the lay leaders to large-scale activity, planned a good educational program and followed through when there was a referendum with good, plain, old-fashioned politicking in the best sense of the word, fluoridation has won. Victories are almost directly proportionate to the extent the dentist and the physician and the public health officials have thrown themselves into the battle.

I suggest, as a historian, that we not look to the past for either solace or recriminations. Instead, let us try to understand that past, the forces working against us today, and then set out on a unified, hard-striking campaign at every level to bring the benefits of fluoridation to your children, my children, and all the children to come after us. It is, indeed, time to walk boldly.

44 South Miller Street

Presented before the Twelfth National Dental Health Conference, American Dental Association, Chicago, April 26, 1961.

*Author, "The Fight for Fluoridation" and "The Polemics of Fluoridation."

The parallelo-facere: a parallel drilling machine for use in the oral cavity

William Sollé, D.D.S., Oceanside, Calif.*

A machinelike unit has been developed for preparing parallel grooves and pinholes in the oral cavity for the retention of fixed bridgework. Although the machine requires esthetic refinement, the results it produces are gratifying. The instrument has been in use for three years, primarily in preparations for upper anterior bridges.

Since the preparation of parallel grooves and pinholes has always been a difficult procedure for many, this article is presented to those who might be interested in a unit which would assist them in this phase of dentistry. Because interest has been displayed by members of the dental profession who have viewed it or heard about it, a description is herein offered to others in the profession.

Primarily, this is a unit with which to construct parallel grooves easier, faster, and more accurately, and is not a unit with which to eliminate all "free-hand work." Also, it should be borne in mind constantly that the sole purpose of this unit is to create parallelism. Any discussion which involves or touches on the technics of dentistry, such as "extension for prevention," size and depth of pinholes, and so on, will not be included in this article; these technics remain at the discretion of the individual operator.

In self-criticism, the unit has the appearance of a Rube Goldberg apparatus, although in reality it is simple when viewed at the chair. Further designing and improvement, especially in relation to size and esthetics, are required; therefore, it should be borne in mind that this unit is not being offered in a perfected form but rather as one with potentialities.

In preference to a lengthy discussion, the article has been confined to pictures of the unit and of four cases which illustrate results; the text is primarily of a technical descriptive nature and includes only a brief discussion.

In order to view the details better, the pictures were magnified considerably. As a result, the rough unfinished laboratory casting is revealed and the size of the pinholes is enhanced. They were made with a no. 700 bur—(I now utilize a no. 699 bur, as suggested by Emanuel D. Shooshan of Pasadena).

An important result of the assured parallelism offered by this unit is that when a heavy lingual plate of gold is used and long pins for retention, the incisal gold may, after cementation, be removed to the point that it is almost invisible, with no fear of loss of strength or retention. This procedure was not necessarily adopted in the cases illustrated; this decision must remain at the discretion of the operator in the same manner as is the choice of size and depth of the pinholes.

Anyone interested in further information relative to this article is invited to write the author who shall be most happy to respond to any inquiries.

PARALLELING MACHINE

A previous article[1] gave a very brief description and showed several pictures of a device with which to make parallel preparations directly in the oral cavity. As a sequel to this article, a more detailed explanation of this machine together with better illustrations will be presented herein.

Need existed for a machinelike mechanism or guide by which to eliminate the human error in obtaining parallelism within the oral cavity and thus facilitate the preparation and alignment of pinholes and grooves in fixed bridgework. With this need in mind, such a unit was devised which I have named the "parallelo-facere" (to make parallel).

The most important factors to be considered were flexibility, maneuverability and ease of manipulation in three line-planes while still maintaining a primary function of parallelism.

In addition, it had to incorporate the following features:

1. Ease in the correct positioning and adjustment (alignment) in relation to the patient—(height and extension to and from the patient).
2. Ease of utilization with the operator in either a sitting or standing position.
3. Ease in fixation in the desired position.
4. Ease of delicate and minute adjustment at any time.

With these factors in mind, a paralleling machine was devised and constructed. For the purpose of clarification, this unit (Fig. 1) may be divided into two main parts, a supporting unit (Fig. 2), and a paralleling unit (Fig. 3).

TECHNICAL DESCRIPTION OF SUPPORTING UNIT

The supporting unit (Fig. 2) is a combination of several arms incorporated as a single unit for the sole purpose of positioning the paralleling device so that the latter can be adjusted to the patient. It is composed of the following:

1. A primary clamp (1) to attach the mechanism solidly to a vertical support.
2. A primary clutch (2) that will allow it to be locked into position and yet permit the entire mechanism to be swung to one side before and after use.

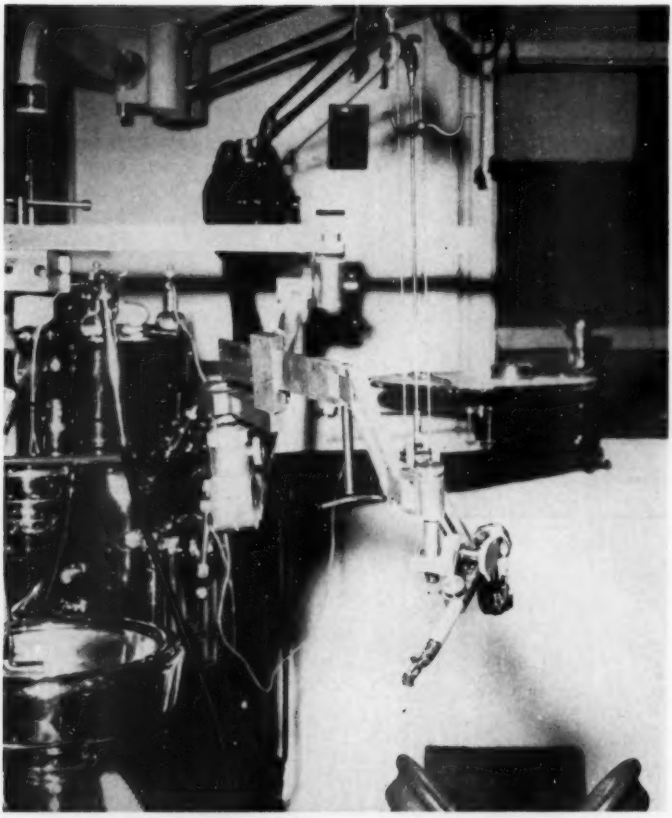


Fig. 1 • Working model attached to dental unit. Note contra-angle

3. A primary horizontal extension arm (3) on which to position a second horizontal extension arm (6) at the desired distance by means of a second clamp (4), which is constructed with an additional clutch mechanism (5).

4. This combined clamp and clutch mechanism, as well as allowing the proper distance at which to make this setting, also easily locks in a viselike manner the second horizontal arm, after the proper relation between the primary arm and the patient has been obtained. This second clutch mechanism therefore permits: (a) any vertical height in relation to the patient; (b) any position sideways in relation to the patient; (c) any extension or retraction to or from the patient.

5. At the distal end of the secondary arm (Fig. 3) is a third clutch (7) on which is incorporated a ball and socket joint (8), and to this ball, a short male attachment (9). This third clutch allows the entire ball and socket unit with male attachment to be aligned approximately parallel to the tooth on which the preparation is to be made.

The ball and socket unit itself is then

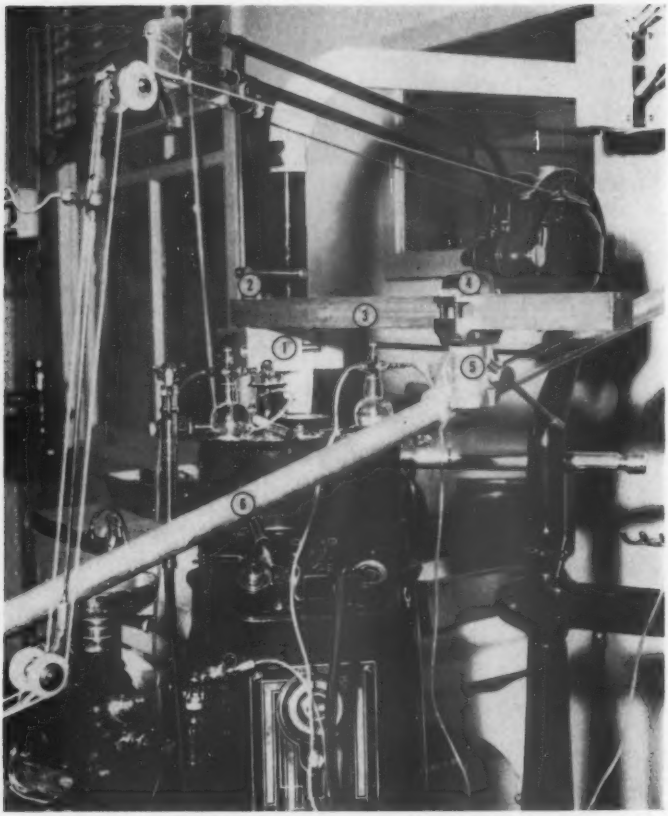


Fig. 2 • Supporting unit labeled as follows: 1—primary clamp; 2—primary clutch; 3—primary horizontal extension arm; 4—second clamp; 5—second clutch mechanism; 6—second horizontal extension arm

utilized to make any final delicate adjustment of the short male attachment (and the paralleling unit) so often needed in the final positioning of the handpiece just before starting the preparation. This male attachment also provides a pivoting action.

The paralleling mechanism in itself is a separate unit positioned on this short male attachment at the proximal end, whereas the distal end of the paralleling unit holds either the straight handpiece or contra-angle.

TECHNICAL DESCRIPTION OF PARALLELING UNIT

The paralleling unit (Fig. 3) permits a combination of several simple movements to be incorporated into a single unit. It is composed as follows:

1. A clamp (10) for attachment to the short male extension of the supporting unit.

2. A pin (11) on the distal end of this clamp over which a female pivot bearing

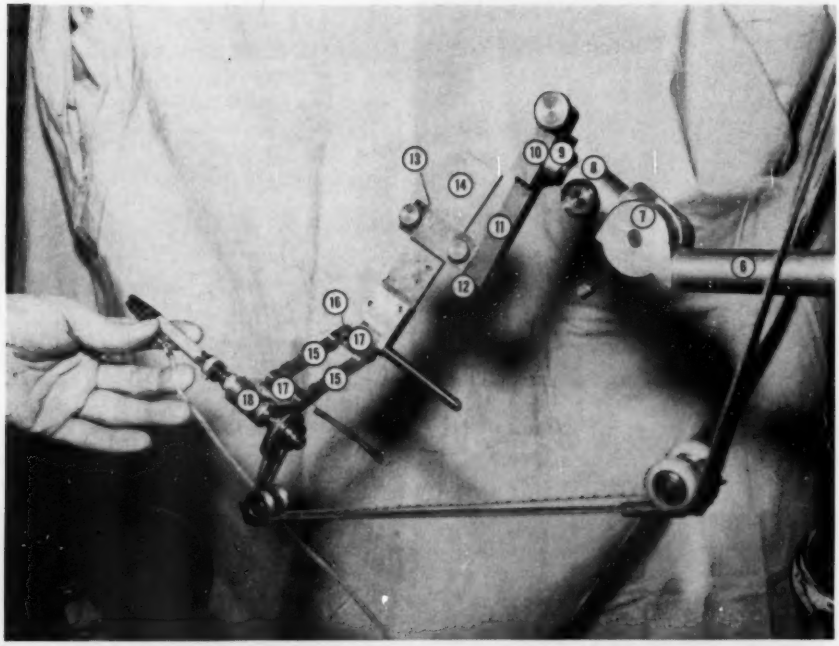
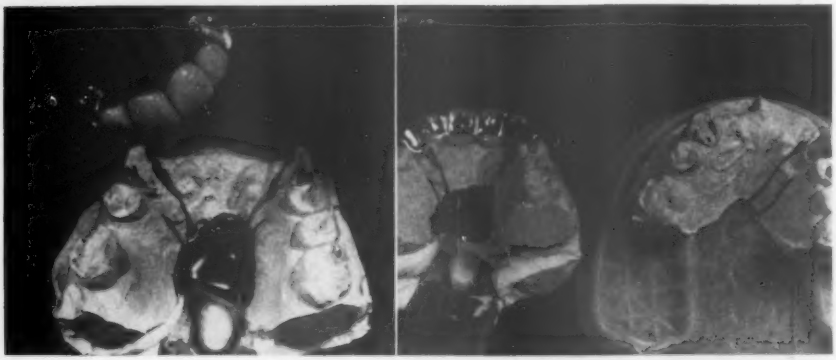


Fig. 3 • Paralleling unit labeled as follows: 7—third clutch; 8—ball and socket joint; 9—short male attachment; 10—clamp; 11—pin; 12—female pivoting bearing; 13—slot; 14—sliding bar; 15—two parallel arms; 16—bearings; 17—rotating bearings; 18—slot arrangement

Fig. 4 • Unit in use showing how it can be moved from side to side, always maintaining absolute parallelism

Fig. 5 • Man, aged 27, required replacement of old six-tooth anterior bridge. Left: Preparation completed. Note shadows illustrating grooves and pinholes



Above left: Working model illustrating bridge replacement beside accessory model. Much destruction of tooth because of previous decay under old bridge
Above right: Working model with bridge. Note pins

Right: Bridge inserted

(12) fits. In addition to the female bearing, there is contained in this rectangular "housing unit" a slot (13) into which a sliding bar (14) fits. The purpose of the bar is to allow the handpiece and paralleling arms to be extended or retracted if needed and locked into the new position desired without altering the original parallel plane.

3. A section at the end of the sliding bar consists of two horizontal arms (15), composing a simple parallelogram, with bearings (16) at each corner. These arms and bearings provide the paralleling motion.

4. At each end of the paralleling arms are rotating bearings (17) to provide rotation, while the distal end also incorporates a slot arrangement (18) into which may be placed either the straight handpiece or contra-angle.

This completes the general technical description of the instrument. Figure 4 illustrates how the unit can be moved from side to side while maintaining parallelism.

DISCUSSION

The benefits resulting from any paralleling device are self-evident and need little explanation. The results are best seen in the case history pictures included (Fig. 5-8). Particular attention should be paid to the pinholes and grooves.

It may be observed that these pinholes are parallel, although tapered, since placed with a no. 700 bur. As mentioned earlier, I use a no. 699 for smaller pinholes, even for a bridge where a span of six teeth is involved, as in cuspid to cuspid.

The position, size and depth of the pinholes are at the discretion of the operator

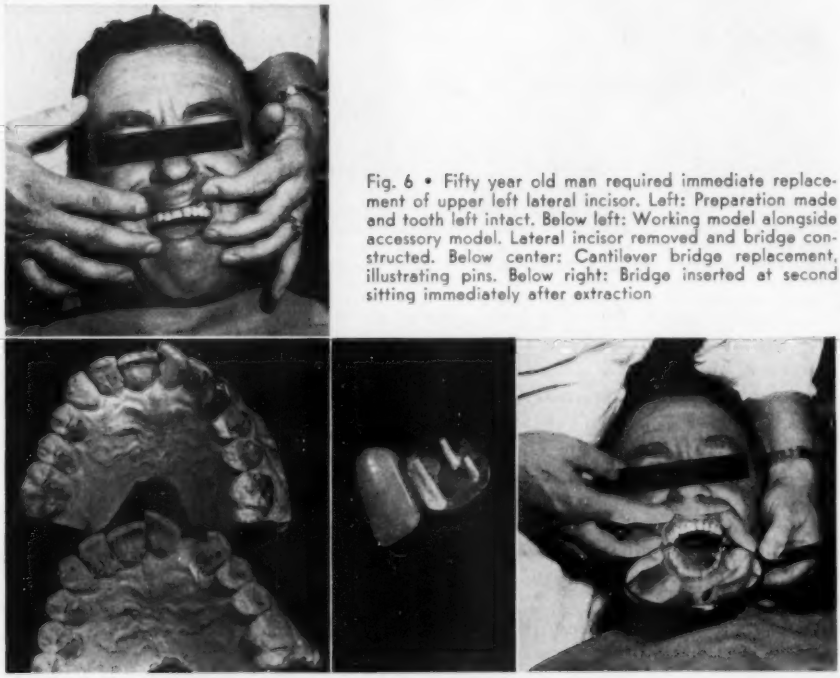


Fig. 6 • Fifty year old man required immediate replacement of upper left lateral incisor. Left: Preparation made and tooth left intact. Below left: Working model alongside accessory model. Lateral incisor removed and bridge constructed. Below center: Cantilever bridge replacement, illustrating pins. Below right: Bridge inserted at second sitting immediately after extraction

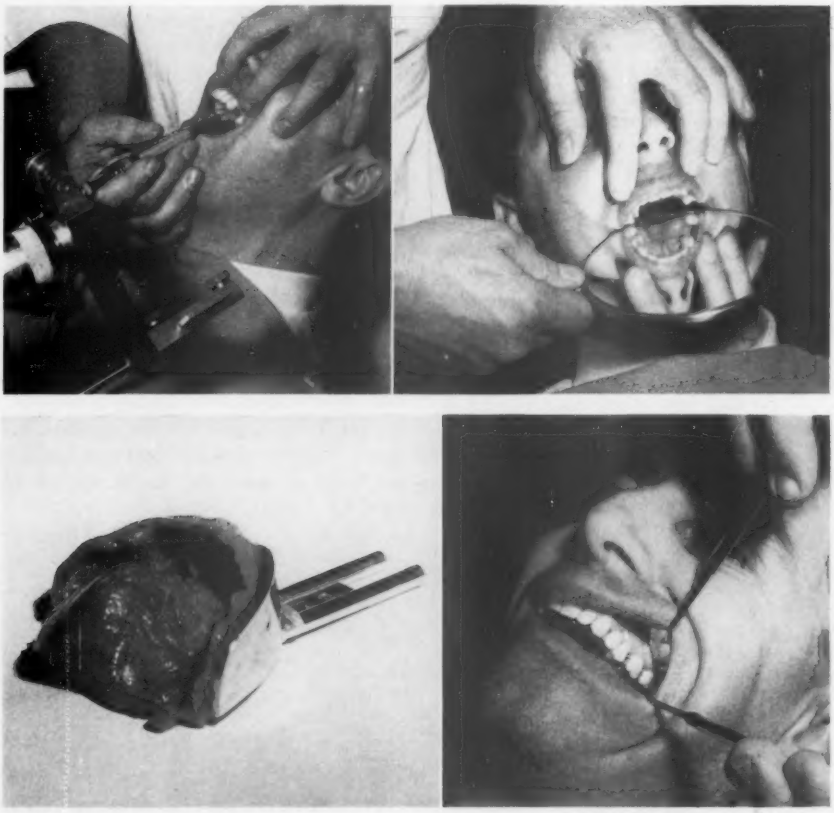


Fig. 7 • Man, aged 26, required replacement of missing upper first bicuspid. Above left: Placing of instrument for pin and groove preparation. Above right: Preparation completed. Note dark shadows illustrating groove and two pins. Below left: Hydrocolloid impressions showing pin and groove. Below right: Bridge completed. Incisal gold may be trimmed further at this point as desired

who always must consider the relative position of the pulp.

The question is always asked: "How do you keep the patient's head still?" This has not been a problem. The patient may expectorate or leave and return to the chair and again assume the correct position easily and readily. Invariably, once the patient understands what is to occur he is cooperative and will hold his head still.

The typical three-quarter crowns are prepared freehand in the conventional manner whereas the pinholes and grooves are prepared last. Since this latter procedure usually requires only a few minutes, there is no necessity for the patient to maintain a prolonged "fixed" position.

The following merits of the system may be of interest: In bridgework it has been found that the incorporation of a heavy lingual plate of gold (for strength) in conjunction with these long parallel pins permits a minimal amount of gold to show on the incisal edge and on the

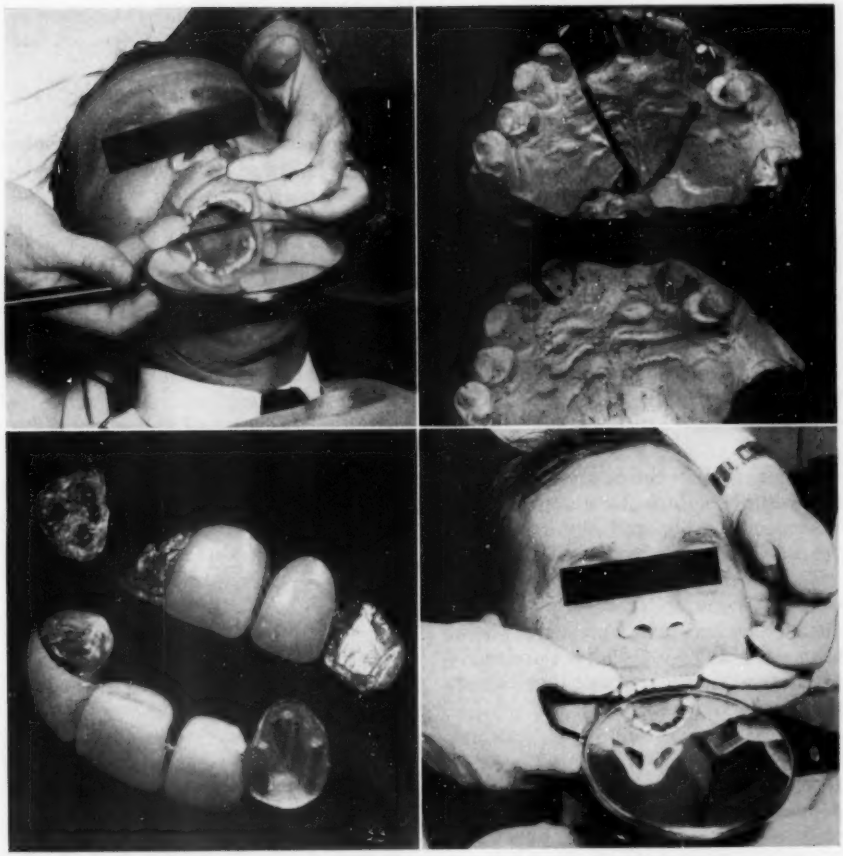


Fig. 8 • Man, aged 39, required four tooth upper left bridge. Above left: Left central and lateral incisors missing. Above right: Bridge on working model with accessory model. Note parallel grooves on cuspid. Below left: Old bridge beside new replacement. Note small grooves in old three-quarter crown preparation on cuspid as compared to gold pins on new casting. Below right: Bridge inserted

mesial and distal marginal slice extensions. Although perhaps contrary to the theory of good dentistry relative to "extension for prevention," it has been found that where indicated or desired, only a solid lingual heavy gold plate with the long pins need be used.

By utilizing this heavy lingual plate for either a cantilever or multiple abutment bridge, the operator may place a unit without any visible gold—again, as desired or indicated—and again at the discretion of operator and patient.

This instrument has been used for three years and those who have viewed it, and the preparations and results, have expressed a gratifying enthusiasm. Primarily, it has been used in the preparations for upper anterior bridges in conjunction with the straight handpiece, whereas only two lower posterior bridges have been constructed utilizing the

contra-angle. The illustrations of the case histories (Fig. 5-8) show bridges prepared for only a few patients. The shadows of the pinhole preparations in the tooth as well as the pins in the unfinished bridgework should be noted.

SUMMARY

The need for developing a machinelike instrument for drilling parallel preparations in the oral cavity was felt to exist. It seemed imperative to incorporate into it such features as ease of adjustment, manipulation, flexibility and maneuverability. It had to allow movement in three line-planes and yet maintain absolute parallelism.

To satisfy all of these requirements and allow the operator to construct fixed bridgework easily and accurately, the "parallelo-facere" was devised. This drilling machine allows the operator to incorporate multiple parallel pins of various lengths and sizes, and thereby minimize the visible gold without undue risk to the strength or retention of the appliance.

CONCLUSION

Although this instrument is not considered as the answer to all problems, it is of considerable help in eliminating much of the human error and inaccuracy so commonly found in fixed bridgework and inlays.

This paralleling machine enables any doctor with a minimum of experience to prepare parallel grooves and pinholes within a few minutes. Considerable chairtime is saved and all bridgework completed in two sittings (in conjunction with the hydrocolloid and indirect technic). The painstaking procedure of preparing parallel grooves and pinholes and any failures due to inadequate retention or misalignment of pins and grooves are eliminated by the assured parallelism.

With continued research leading toward improvement and perfection of this instrument, it is felt that a more esthetic unit might be devised—a step which is presently being undertaken. Toward this goal, any outside suggestions or comments will be warmly appreciated, since this has been a personal undertaking.

2230 Oceanview

The opinions or assertions contained in this article are the private ones of the writer and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

*Lieutenant Commander, Dental Corps, U. S. Navy.

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Education • We need education in the obvious more than investigation in the obscure. *Oliver Wendell Holmes.*

Dental practice simplification utilizing multiple ultra-speed handpieces and auxiliary equipment: a progress report

Harold C. Kilpatrick, D.D.S., New Canaan, Conn.*

The use of multiple ultra-speed handpieces with a minimum of universal cutting tools mounted in them, coupled with properly grouped auxiliary equipment with convenient control centers for this equipment and a mobile cervical tray, greatly increases the efficiency of the dental operator. Use of such equipment in preparations for compound amalgam restorations is described.

The combined use of time and motion observations of operating room arrangements[1] and ultra speed[2] along with auxiliary equipment can greatly increase the efficiency of many dental procedures. The problem confronting many operators is what arrangements and what auxiliary equipment work best with ultra speed. Many new devices are being offered, and the buyer is confused concerning their value. It is not the purpose of this article to advise the purchase of all or even any of the equipment under discussion. This article presents the observations and opinions of the author, who has tried out various pieces of new equipment with almost all types of practice for several years. Among the equipment being tested constantly are 12 different types of ultra-speed devices, three types of contour and lounge chairs, five different makes of high-velocity suction machines, three different makes of audio analgesia machines, three types of cervical trays, two tray cabinets, several types of mobile auxiliary cabinets arranged in modular pattern, two high-fidelity and stereophonic sound systems and seven variable speed controls for ultra-speed contra-angle handpieces, three with foot-controlled chip blowers.

These new arrangements and devices usually work best when the dentist has a chair assistant; however, the operator working alone can also attain greater efficiency. The utilization of a minimum of cutting tools and multiple ultra-speed handpieces allows the operator to perform entire preparations without changing the bur or stone, only the handpiece.

Efficient traffic flow arrangement is necessary in the well-organized operating room. Time and motion studies[3] have also pointed out that the seated operator with all his equipment and instruments within his arms' reach can do more work easier and will be less tired at the end of the work day than will the standing operator. However, not all operators prefer to work seated for all phases of dental treatment. Sitting all day can be about as tiring to some dentists as stand-

ing. Some are temperamentally unsuited for sitting. Combining standing and sitting is preferred by some dentists, but I find that almost 95 per cent of all dental operations can be performed while seated.

It is essential to change position enough times per hour in order not to overtire the same sets of muscles. Particular care should be given to back position. The trunk should remain as erect as possible and not be allowed to slump. This is of special importance when the operator changes from standing all day to a sitting position, particularly when the patient is placed in a lounge or contour-type operating chair. For the first few weeks the operator may experience back discomfort due to using untrained back muscles. Resting the chest on the dental chair or operating stool back helps prevent back fatigue. Persistence and proper training will overcome most of this fatigue. The proper kind of operating stool is also mandatory. The most desirable kind is the swivel type that is fixed to the chair base and rotates in an arc of 145 degrees measured in relation to the patient's head.

Additional studies have pointed out the desirability of an operating room that has modular or mobile cabinets mounted in a U around the operator and an entrance door arranged so that the patient enters from the foot of the dental chair rather than at the headrest area.[4] In this way the patient does not walk across the operator's traffic pattern. However, the majority of dental operating rooms do not lend themselves to this treatment, and it would be economically impossible for many operators to rearrange them to conform to the completely modular pattern. However, with certain additions and changes, the standard, rear entrance operating room can be converted to a much more efficient arrangement.

An auxiliary cabinet is placed to the rear of the patient's head. Where room permits, the cabinet to the right of the chair is moved so that the assistant can pass behind it. Twin stools are available for both operator and assistant.

The mobile rear cabinet (Fig. 1) is the real work horse in this arrangement. It is placed so that both the operator and assistant have all operating essentials at their fingertips without leaving their seated positions. It also holds the patient's chart and roentgenograms so that they can be viewed by the operator without turning around. The day sheet with the day's patient list is also clipped here, and the type of operation to be performed is denoted in code beside the patient's name. The assistant can then prepare the operating essentials beforehand and have them placed on coded trays. A variety of tray set-ups can be made in advance and stored in a tray cabinet (Fig. 2). Every possible set-up for procedures ranging from examination to surgery is always available in the tray cabinet. An average operator can use about 12 trays for operative and crown and bridge procedures and five surgical trays. Photographs of the various trays facilitate regrouping the set-ups after sterilization. Instruments should be arranged in proper sequence for each operation (Fig. 3, left). New assistants find these photographs very helpful.

All types of practice can find these arrangements advantageous. Operative and reconstructive work is particularly helped, but general practice, orthodontics, oral surgery, prosthodontics and pedodontics are all benefited. Roentgenographic procedures, however, are more easily carried out by having the patient in a more erect position.

After the patient is seated in the contour or reclining type of operating chair, the tray necessary for the dental procedure is placed on the mobile cervical tray (Fig. 3, right) beside the patient's head. The mobile cervical tray holds the instruments in a place from which the operator can pick them up without mov-

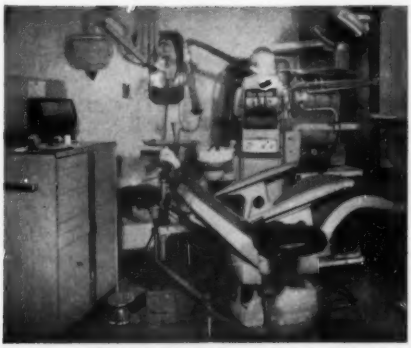

Fig. 1 • Mobile rear cabinet is convenient to both operator and assistant. Note dual operating stools that permit assistant and operator to work while seated. Also note contour chair for patient, mobile cervical tray that makes instruments accessible to operator and assistant, and matched stereophonic speakers

Fig. 2 • Mobile tray cabinet contains prearranged trays with set-ups for all procedures

Fig. 3 • Left: Photographs of tray set-ups assist re-assembly of instruments on trays. Right: Mobile cervical tray to left of patient's head holds instruments for operation being performed. Two air turbine handpieces and high-velocity suction tips are accessible from cervical tray. Operator has three air-turbine, two belt-driven and one low-speed handpieces available

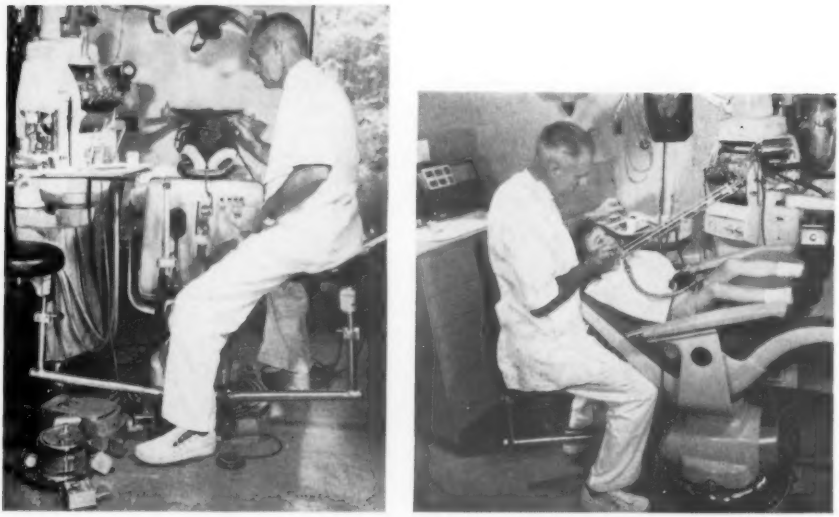

Fig. 4 • Left: Foot and hand control centers are convenient to operator. Switches on rear of chair back control (from left to right) three high-velocity suction machines, unit instrument panel, operating light, air and water spray, ultrasonic prophylaxis machine and electronic mallet. Right: Small patient is made comfortable in contour chair with special child's insert and audio analgesia. Miniature head handpiece as well as standard handpiece is available on cervical tray. High-velocity saliva ejector remains in patient's mouth during operation

ing his head or shifting the instrument from left to right no matter where he is working around the chair. It can also eliminate the handing of the instrument from the assistant to the operator. The assistant can use the cervical tray as a loading platform and may place the additional instruments on it when desired. This is of particular advantage when loading amalgam carriers. The tray moves up and down with the chair and can be adjusted up and down or around the patient's head. Color coding of instruments and drawers facilitates these procedures.

One ultra-speed handpiece greatly speeds operative preparations, but combinations of two and three ultra-speed instruments increase efficiency even more. An ideal arrangement, in addition to the regular unit low-speed engine handpiece, is one belt-driven and one or two air turbine contra-angle handpieces at each chair. With this arrangement, the operator may also mount a miniature head turbine as well as a standard head. Several turbine manufacturers are offering adapters so that most turbine handpieces can be operated from control lines of different makes. Belt-driven ultra-speed contra-angle handpieces may be coupled to a dual arm transmission so that the slow, medium or high-speed handpiece, up to 50,000 rpm, is always available immediately.

The operator who does not have a chair assistant available at all times can make the best use of multiple ultra-speed handpieces. In this way all the necessary cutting tools for the operation may be previously mounted and can be used continuously without stopping for a change of cutting tools. The addition of a variable foot control increases the versatility of air turbines. Hand and foot control centers (Fig. 4, left) which group all

the controls for the belt-drive, air turbines, unit engine and auxiliary equipment in two spots again simplify the operator's movements. A high-velocity suction apparatus for rapid removal of fluids and debris is another great help to practice simplification.

Ultra-speed handpieces should be convenient to the operator. The air turbine handpieces may be mounted in succession in holders on the bracket table rim or in holders on the cervical tray (Fig. 3, right). Belt-driven ultra-speed contra-angle handpieces are best handled from the engine arm hangers. One type of belt-driven handpiece can be also used from the bracket table. Controls for the handpieces should be simplified as much as possible and consolidated into one foot control. If possible, switches to go from one handpiece to another should be on this control and easily accessible to the foot without having the operator look to make the change. The high-velocity suction mouthpieces should also be mounted so that they are convenient to the operator. Hand switches to control the high-velocity suction apparatus, operating light and accessory equipment such as the electronic mallet and prophylaxis machine should be conveniently grouped behind the chair back so the operator does not have to reach to operate them. They should be of a stainless material so that they can be wiped clean in-between patients.

Patients are more comfortable in the reclining type of chair (Fig. 1). The operator who utilizes the operating stool finds that patients in a reclining position are easier to work on. Because they are more comfortable, they are more relaxed. Slumping is greatly reduced, which in turn reduces the operating light and body adjustments of the operator. In a reclining position the patient finds it difficult to use the cuspidor; the high-velocity suction apparatus helps to lessen the need for this procedure.[5] If a chair assistant is not available, the hydroceptor or other type of saliva ejector arrangement can be used with the high-velocity suction apparatus. Special high-velocity saliva ejectors are available from all manufacturers (Fig. 3, right).

PREPARATIONS FOR COMPOUND AMALGAM RESTORATIONS

The patient is made comfortable in the contour chair (Fig. 4, right). Stereophonic music through headphones or stereophonic speakers is adjusted to taste and may be employed as a distraction while the patient receives the injection of a local anesthetic agent. A disadvantage of the present type of headphones is that they limit head movements of the patient, which may contribute to back fatigue of the operator because he forces himself to work in a position to accommodate the patient's fixed head. An arrangement to offset this would be desirable. The use of headphones shuts out the noise of ultra-speed and high-velocity suction equipment, and the patient's need to expectorate is somewhat reduced. I have found that the use of audio analgesia does not entirely eliminate the use of local anesthesia. Bird feeders outside the operating room window help divert the patient's attention.

While the operator is waiting for anesthesia, the cutting tools are placed into the ultra-speed handpieces. Three cutting tools are selected for the compound amalgam preparation: the no. 557 carbide bur, the no. 4 round carbide and fine grit cylinder diamond stone. The high-velocity suction apparatus is adjusted, and the operative procedure is pointed out to the chair assistant. If there is no assistant, a high-velocity suction apparatus with a special saliva ejector may be employed.

For the first cut in the occlusal surface of a posterior tooth, a no. 557 carbide bur is selected, and with the use of a turbine contra-angle handpiece at sufficient pounds per square inch a 45 degree

angle cut is made with a slow, up-and-down motion to bring the crosscuts into play. The cutting tool then is brought parallel to the long axis of the tooth and the occlusal preparation is carried out. The same no. 557 carbide bur then performs the interproximal part of the preparation. The belt-driven contra-angle handpiece which has a no. 4 carbide bur mounted in it is used for decay removal, using an oscillating motion to shift the dead center of the bur. Decay in critical regions can be removed with air alone with reduced speed, or the low-speed handpiece may be employed.

As ultra-speed procedures have a tendency to burnish decay, it is prudent to use a sharp spoon excavator for testing questionable areas. While the operator is removing decay, the assistant changes the turbine cutting tool from the no. 557 bur to the cylinder finishing diamond. The operator then completes the preparation with this tool. If three ultra-speed handpieces are available, there is no need to change the cutting tools. Some operators use up to five ultra-speed contra-angle handpieces with efficiency. With mouths of limited opening and hard-to-get-at areas, it is desirable to have one turbine equipped with a miniature head. Any grouping of the handpieces and cutting tools can be arranged to suit the operator for any type of operation which includes all phases of dentistry. With selection kept to a minimum, less time is consumed in making decisions over what cutting tool to use. The same procedure as used for compound amalgam preparations can be used for any technic simply by setting up the cutting tools in advance. The operator, of course, may change to any other cutting tool that he wishes during the procedure.

Ultra-speed handpieces that have chip blowers can increase efficiency by eliminating the time and motion required to stop the cutting procedure, hang up the handpiece, pick up the air chip blower, blow out the preparation, hang up the chip blower, pick up the handpiece and return it to the cutting position. At least seven movements are saved by having the chip blower a part of the handpiece; some foot switches and variable foot controls for air turbines and one belt drive have this feature. This procedure of continuous operation offsets the patient's taking advantage of the pause to expectorate in the cuspidor, because the motion of hanging up a handpiece is often a signal for the patient to rinse out his mouth.

Another feature that is desirable is a warmed water spray for the ultra-speed contra-angle handpieces. Sensitive teeth that are irritated by a cold spray are more comfortable when the spray is warmed. The warmed spray also can be turned to clean the clouded mirror. A mirror dip is also helpful and is placed so that it is readily accessible to the left hand on the cervical tray. New coolant sprays are available that employ a power mist arrangement. Mirror visibility is considerably increased in the upper arch. Chip blowers are also available with this equipment.

SUMMARY AND CONCLUSIONS

Time and motion studies have pointed out the value in saving one of the dentist's most valuable commodities, time.

The use of multiple ultra-speed handpieces with a minimum of universal cutting tools mounted in them, coupled with properly grouped auxiliary equipment with convenient control centers for this equipment and instrument tray arrangements mounted around the patient's cervical area on a mobile cervical tray, greatly increases the efficiency of the dental operator.

After experience with new equipment and methods, the following conclusions have been reached:

1. Multiple ultra-speed handpieces are desirable to eliminate the time wasted

in changing cutting tools. It is more efficient to change the handpiece than to change the cutting tool while operating.

2. Auxiliary equipment such as rapid fluid-removing machines can also increase efficiency.

3. Proper grouping of cabinets, and trays arranged around the patient's neck area so that instruments can be picked up without the operator's changing hands or turning his head, save time and lessen fatigue.

4. A hand control center behind the operating chair is of benefit for switching sprays, high-velocity suction apparatus, operating light instrument panel, electronic mallet and prophylaxis machine.

5. A foot control center which combines the regulation of speeds of multiple ultra-speed and slow-speed handpieces with their sprays offers additional time-and-fatigue-saving features.

6. Most patients who are offered the distraction of high-fidelity stereophonic music are more amenable to dental operations. However, when audio analgesia is used, supplementary local anesthesia is still needed.

7. Variable foot controls with foot chip blowers increase the versatility of air turbine and belt-driven ultra-speed contra-angle handpieces.

8. Contour and reclining dental chairs help the patient relax and reduce slumping.

9. The operator who sits down on the proper kind of swivel operating stool is less fatigued at the end of his work day.

Since all equipment is being constantly refined and improved, it is to the dentist's advantage to keep aware of this progress and adapt that which simplifies his work procedures. Use of multiple ultra-speed handpieces enables the dentist to use older versions of ultra-speed equipment along with new, improved models.

It is the obligation of the manufacturers to provide auxiliary equipment in a usable, convenient, uncluttered, compact form, preferably in one movable unit that is usable in any position around the contour chair. It is the dentist's obligation to learn how to use the technics and new equipment that add to his efficiency and the patient's comfort.

Smith Ridge Road

*Member of the stress and motion workshop committee of the Academy of Dental Practice Administration.

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Discoveries • The difference between what we find and what we think we ought to find often results in great discoveries. *W. Albert Noyes, Jr.*

Salivary enzymes

Howard H. Chauncey, Ph.D., Boston, Mass.*

A high positive correlation has been found between severe periodontal disease and high protease activity in human subjects. Although the exact role that proteases play in the initiation and progression of periodontal disease is not clear, a review of the literature leads to the following theory: Salivary proteases, alone or acting syngergistically with hyaluronidase, are capable of penetrating oral epithelium in areas of irritation and lysing the collagen fibers and ground substance in the underlying connective tissue. This could render a region more susceptible to bacterial invasion.

Saliva is a complex mixture of liquid and particulate matter which originates from several sources. Therefore, it becomes requisite that aspects other than a simple biochemical analysis of this heterogenous mixture be evaluated in the study of salivary enzymes. Before any attempt can be made to understand the influence of enzymes on the physiological processes occurring in the oral cavity, the function, origin, characteristics and interrelation of these enzymes must be determined. At present more than 30 enzymes have been found in saliva. Table 1 contains a listing and classification of the better known enzymes.

From among the enzymes which have been classified as carbohydrases, amylase is undoubtedly the best known. This enzyme is one of the three in this category that are known to be secreted by the salivary glands. Whereas there is little information available concerning the ability of oral microorganisms to attack starch, fortunately, or perhaps unfortunately, the literature abounds with studies on the amylase content of whole saliva. Human saliva exhibits considerable variation in amylase activity.[1-4] Pickerill[5] was among the first to note that the amylase content of mixed saliva increased as the secretion rate increased. This phenomenon, however, is in contradiction to later observations[6] which indicate that the enzyme titers of the pure glandular secretions are independent of the rate of flow. This latter finding is supported by a recent study of Schneyer's[7] in which the amylase content of parotid, submaxillary and sublingual saliva was measured. Schneyer noted that the amylase content of these three fluids, particularly the parotid which contained four times as much amylase as the submaxillary and sublingual secretions, was not affected by varying the rate of flow. Schneyer[8] has found, also, that whole saliva collected

Table 1 • Salivary enzymes

Enzyme	Source		
	Glands	Microorganisms	Leucocytes
Carbohydrases			
Amylase	X	O	O
Maltase	O	X	X
Invertase	O	X	O
Beta-glucuronidase	X	X	X
Beta-D-galactosidase	O	X	X
Beta-D-glucosidase	O	X	O
Lysozyme	X	O	X
Hyaluronidase	O	X	O
Mucinase	O	X	O
Esterases			
Acid phosphatase	X	X	X
Alkaline phosphatase	X	X	X
Hexosediphosphatase	O	X	O
Aliesterase	X	X	X
Lipase	X	X	X
Acetylcholinesterase	X	O	X
Pseudo-cholinesterase	X	X	X
Chondrosulfatase	O	X	O
Arylsulfatase	O	X	O
Transferring enzymes			
Catalase	O	X	O
Peroxidase	X	O	X
Phenyloxidase	O	X	O
Succinic dehydrogenase	X	X	X
Hexokinase	O	X	X
Proteolytic enzymes			
Proteinase	O	X	X
Peptidase	O	X	X
Urease	O	X	O
Other enzymes			
Carbonic anhydrase	X	O	O
Pyrophosphatase	O	X	O
Aldolase	X	X	X

by using minimal exogenous stimulation is composed mainly of fluid from the submaxillary gland, whereas whole saliva collected by using a strong exogenous stimulus contains an increased percentage of parotid fluid. When these two observations are integrated it becomes evident that the apparent relation between the amylase titer and secretion rate is actually due to a change in the parotid-submaxillary ratio of whole saliva.

Many functions have been ascribed to salivary amylase and some early workers[5,9] believed that this enzyme exerted a protective function by removing starch which had become entrapped on and around the teeth. Not too many years ago it was in vogue to use the amylolytic index of saliva as an indicator for dental caries susceptibility. Certain proponents[2,10] of this test claimed that there was greater amylolytic activity in the saliva of caries-susceptible individuals. Others[11-13] contended that there was a significant inverse relation between salivary amylase activity and caries incidence. A third group[14-17] reported that no correlation existed between the two. Thus, the use of the amylolytic index for the evaluation of dental caries rate was eventually discarded.

The occurrence of maltase in saliva was established by Tauber and Kleiner[18] when they observed that maltose was hydrolyzed when incubated with saliva. In a similar manner, the presence of invertase was inferred when Lisbonne[19] and Bourquelot[20] found that the addition of whole saliva to solutions of sucrose caused an increase in the reducing sugar concentration. Although little information is available concerning these two enzymes, most of the data thus far obtained indicates that they are metabolic products of the microorganisms inhabiting the oral cavity.

The next three enzymes in this series are beta-glucuronidase, beta-D-galactosidase and beta-D-glucosidase. Beta-glucuronidase was first noted in saliva by Fishman,[21] who believed it to be a secretory product of the glandular epithelium. This contention was supported when the enzyme was found in the pure secretion from the parotid and submaxillary glands.[22,23] Beta-glucuronidase, as well as beta-galactosidase and beta-glucosidase, are produced by oral bacteria.[22,24] The latter two, however, appear to be solely the product of organisms. It has not been possible to demonstrate their presence in parotid and submaxillary saliva.

Perhaps two of the most interesting enzymes found in saliva are lysozyme and hyaluronidase. Salivary lysozyme activity was first noted in 1922 by Alexander Fleming.[25] It has been reported that the lysozyme content of saliva is eight times that found in serum.[26] This enzyme is of glandular origin and whole saliva values show no correlation with oral conditions. On the other hand, hyaluronidase is strictly of microbial origin. Mahler and Lisanti[27] have shown that several types of oral organisms are able to produce this enzyme. They also found that subjects with periodontal disease had elevated hyaluronidase titers. Rovelstadt and others[28] and Reynolds[29] have confirmed this finding of a relation between salivary hyaluronidase titers and the incidence of periodontal disease.

The last of the carbohydrases is mucinase. All that is known is that saliva contains mucinase activity[30] and that it appears to be derived from oral bacteria.

ESTERASES

From among the enzymes classified as esterases, the phosphomonoesterases (acid and alkaline) are the most prominent. Numerous investigations[31-39] have been undertaken to determine the exact source of these enzymes. Various early workers[31,32] were of the opinion that salivary phosphatase activity originated from desquamated epithelial cells. Certain other investigators[40,41] were unable to demonstrate phosphatase activity in oral epithelium and believed that these enzymes were derived only from bacteria or inflamed subepithelial tissues. Eggers-Lura,[36] in a noteworthy effort to establish the source of these enzymes, tested gingival tissue, plaque, enamel, dentin, parotid saliva and submaxillary saliva. All these materials exhibited activity at both pH 9.8 and 4.8, except for the enamel and dentin which were inactive at an acid pH.

The discovery of phosphatase-producing organisms in the matrix of oral calculus[42] appeared to offer a solution to the enigma of calculus formation. This finding was the impetus for several investigations[38,39,43] which attempted to find some relation between salivary phosphatase levels, bacterial counts and calculus formation. This seemingly promising lead eventually proved unproductive, except that it did result in the finding that actinomyces, lactobacilli, streptococci, staphylococci and *Aerobacter aerogenes* were capable of hydrolyzing esters of phosphoric acid. Two other phosphatases have been found in saliva: hexosediphosphatase[44] and pyrophosphatase.[36,45] Since the latter is not responsible for the splitting of an ester linkage but induces

hydrolysis of an acid anhydride, it has been placed in the final category of Table 1. As with so many other enzymes, hexosediphosphatase and pyrophosphatase have been the subjects of limited investigations and only their presence and probable source are known.

Nonspecific or aliesterases are ubiquitous enzymes and are present in almost all animal and bacterial cells. These enzymes are capable of hydrolyzing esters of short chain fatty acids. In contrast, lipases preferentially attack the glycerides of long chain fatty acids; however, both groups of enzymes are able to split esters of intermediate size. This overlapping in activity has led to difficulties in terminology, and esterases capable of breaking down intermediate length fatty acid chains have frequently and incorrectly been labeled as lipases. By using both short and long chain fatty acid esters to determine the true esterolytic and lipolytic activity of saliva and salivary microorganisms it has been shown that at least 16 different oral organisms are able to elaborate aliesterases.[46] In contrast, only one of the 16 organisms so tested, *Staphylococcus aureus,* demonstrated true lipase activity. Both these enzymes have been found in the pure secretions from salivary glands, but only in relatively small quantities.

Acetylcholinesterase[24] and pseudocholinesterase[23] have been noted in whole, parotid and submaxillary saliva. Comparatively small amounts are present and these enzymes appear to originate, for the most part, from the glandular secretions with only minor contributions arising from the cellular elements present in the mixed fluid. Two oral organisms, *Staph. albus* and *Aerobacter aerogenes,* have been observed to possess pseudocholinesterase activity.[46]

The final two enzymes in the category of esterases are chondrosulfatase and arylsulfatase. Certain investigators[47,48] have postulated that sulfatases contribute to the formation of dental caries; others[49,50] believe that these enzymes may have an important role in the development of periodontal disease. The basis for the former theory is the observation that sulfatase-producing organisms, isolated from carious lesions, are able to attack the sulfated glycoprotein present in undemineralized dentin and enamel. Unfortunately, this promising lead has not been followed up.

TRANSFERRING ENZYMES

Transferring enzymes catalyse reactions in which a chemical group is transferred from one compound to another. An important subgroup consists of those enzymes which catalyse the transfer of two hydrogen atoms from one molecule to another. These are the oxidizing enzymes. Of the five transferring enzymes found in saliva[51-56] the first four are oxidizing enzymes. Catalase and peroxidase contain iron and require hydrogen peroxide as their hydrogen acceptor. Their action differs in that catalase requires hydrogen peroxide to serve as the hydrogen donor, whereas peroxidase is able to utilize many phenolic compounds and aromatic amines as its hydrogen donor. Phenyloxidase, which utilizes similar hydrogen donors as peroxidase, is a copper containing enzyme and catalyzes the direct oxidation of its substrates with atmospheric oxygen. Succinic dehydrogenase utilizes the organic compound DPN as its hydrogen acceptor. Hexokinase is the only member of this group which is not an oxidizing enzyme. This enzyme is involved in the transference of a phosphate group. Knickerson, Kraus and Perry[57] have established that peroxidase arises principally from the glandular secretions and leucocytes present in the mixed fluid, whereas catalase originates from oral bacteria. They have also found that the average salivary values of catalase and peroxidase are significantly higher for periodontal patients than for normal subjects.[58]

Table 2 • Comparative enzyme activity of whole, parotid and submaxillary saliva

Enzyme	Mean activity*		
	Whole saliva	Parotid saliva	Submaxillary saliva
Acid phosphatase	5.54	0.42	0.55
Alkaline phosphatase	0.48	0.0	0.0
Nonspecific esterase	3.23	0.05	0.12
Pseudo-cholinesterase	0.053	0.033	0.045
Lipase	1.18	0.03	—
Beta-glucuronidase	770.8	84.8	54.3
Beta-D-galactosidase	1.07	0.0	0.0
Beta-D-glucosidase	0.44	0.0	0.0

*Activity expressed as units per 100 ml. of saliva.

PROTEOLYTIC AND OTHER ENZYMES

Human whole saliva has been shown to contain proteinases,[59-61] peptidases[62] and ureases.[63-67] This complexity of proteolytic activity appears to be due to the bacteria, leucocytes and epithelial cells in suspension. After centrifugation of saliva the tryptic activity is usually diminished by about 85 per cent, the difference being found in the sediment. Bacteria have been shown to be one source of these enzymes. Furthermore, a proteolytic enzyme, which has characteristics similar to the protease found in saliva, has been prepared from leucocytes.[59] Salivary proteolytic activity thus appears to reflect, in a measure, the proteolytic ability of the microorganisms and leucocytes present in saliva.

In addition to the afore-mentioned enzymes, various other enzymes have been reported. These include carbonic anhydrase,[68] aldolase[69] and an enzyme which is able to liberate hydrogen sulfide from horse radish.

DISCUSSION

It can be seen that an impressive number of enzymes is present in saliva. Most are either partially or entirely produced by the microorganisms which normally inhabit the oral cavity. Many are present in the leucocytes found in saliva, and a large portion are contained in the pure secretions generated by the salivary glands. Only one or two appear to originate from desquamated epithelial cells.

One might now ask of what practical value are salivary enzyme measurements. This can, perhaps, best be answered by detailing some of the information gathered in our recent studies. Studies dealing with eight carbohydrases and esterases (Table 2) have indicated that the salivary glands contribute only relatively small amounts of these enzymes to the total found in whole saliva.[22,23] Only with two enzymes, acid phosphatase and beta-glucuronidase, do the parotid levels approach those found in blood serum. The acid phosphatase activity of parotid saliva is about half that found in serum, whereas the glucuronidase is approximately one-third the serum level.[70] The relatively large amount of parotid saliva acid phosphatase, in comparison to serum values, prompted an investigation of the kinetic characteristics of this enzyme.[71] It was subsequently revealed that the parotid enzyme had certain properties similar to those found for prostatic acid phosphatase. The similarity of these two enzymes, in turn, created an interest in the behavior of the parotid enzyme in persons with early and advanced carcinoma of the prostate gland. The ensuing

Table 3 • Enzyme patterns of salivary microorganisms

Organism	Enzyme activity					
	Acid phosphatase	Alkaline phosphatase	Nonspecific esterase	Beta-glucuronidase	Beta-D-galactosidase	Beta-D-glucosidase
Lactobacillus casei	None	None	Moderate	None	None	Intense
Group "L" streptococcus	Intense	Intense	Low	None	None	None
Streptococcus salivarius	Intense	Moderate	Intense	None	Low	Moderate
Escherichia intermedium	Moderate	Low	Moderate	Low	Intense	None
Staphylococcus albus	None	None	Intense	Severe	None	None

study indicated that there was a significant elevation in the parotid saliva acid phosphatase activity of individuals with metastatic and nonmetastatic cancer of the prostate.[72] Although the value of parotid saliva phosphatase measurements in the detection of carcinoma of the prostate could not be established by this preliminary study, the findings did serve to point out the physiological interrelation of the two different tissues.

Our investigation of the origin of salivary carbohydrases and esterases also included bacteriological studies. Table 3 illustrates an interesting finding. It was noted that many of the organisms present had highly individualistic and stable enzyme patterns. That is, when these organisms were grown in brain-heart infusion broth they repeatedly produced a characteristic enzyme pattern. A similar stability of whole saliva enzyme patterns was also observed in the day to day and week to week testing of a randomly chosen test population. Since it is well known that the measurement of oral bacteria produces highly variable results it was believed that whole saliva enzyme titers might be an extremely useful tool for determining variations in the growth and metabolism of oral microorganisms. By utilizing these technics it has been possible to measure accurately the effect of various proprietary preparations on the microbial populations of the oral cavity.[73]

While we were studying the carbohydrases and esterases we were also investigating the proteolytic enzymes of saliva. This series of studies was initiated in an effort to ascertain if salivary protease activity was related to mouth odor. This assumption seemed plausible since the enzymatic degradation of proteins produces certain by-products which have unpleasant odors. During this period it was noted that certain test subjects who did not have particularly objectionable mouth odor did have extremely high salivary protease titers. On examining the clinical records of these individuals it was noticed that all of these persons had moderate to severe periodontal disease. Subsequent studies repeatedly showed this relationship between salivary protease activity and periodontal disease. These findings were the impetus for initiating a study to determine the origin of these enzymes and their exact relation to periodontal disease.

Paraffin-stimulated whole saliva was collected from more than 100 subjects and analyzed for protease activity. The subjects were then arbitrarily classified into three categories: low, moderate and high protease activity. The population

contents of the three categories were: 30 per cent, 55 per cent and 15 per cent, respectively. Through clinical and roentgenographic examination procedures the number of decayed, missing and filled teeth, the periodontal condition and the amount of calculus were determined and recorded for each subject. Phi correlation analysis of protease activity and oral condition showed a positive correlation between the protease titer and the periodontal condition. All subjects who had severe periodontal involvement were in the high activity group. Whole saliva samples were then collected from 70 persons who had periodontal disease and who were eventually treated by deep scaling and curettage or gingivectomy. Eighty per cent of these persons had abnormally high protease titers. Of the 33 subjects who were retested after periodontal therapy, 16 still had high protease titers, although their gingiva appeared clinically normal. To determine the origin of the protease activity whole saliva was fractionated and tested. Centrifugation showed that the majority of the activity was contained in the sediment. The sediment was then differentially centrifuged into two components: (1) mammalian cellular elements such as epithelial cells and leucocytes, and (2) microorganisms. It was found that the mammalian cellular elements contributed from 60 per cent to 80 per cent of the total activity found in the saliva of clinically normal persons, whereas the remaining 20 per cent to 40 per cent originated from the oral flora. The distribution ratio has not yet been determined in persons having periodontal disease. Repeated testing of the pure secretions from the parotid and submaxillary glands indicated that these fluids were devoid of protease activity.

Numerous microorganisms were isolated from whole saliva samples. Pure cultures of 76 organisms were grown in brain-heart infusion broth and tested for protease activity. Sixteen of the bacteria so tested were able to elaborate proteolytic enzymes. Organism classification indicated that 11 were streptococci of the viridans group, four were *Pseudomonas aeruginose,* and one was a *Staphylococcus citreus.*

At present the exact role that proteases play in the initiation and progression of periodontal disease is still unknown. However, these results, supplemented with the finding of a relation between periodontal disease and salivary hyaluronidase by Mahler and Lisanti[27] and Rovelstadt, and others,[28] have led to the following theory: salivary proteases, alone or acting synergistically with a mucopolysaccharidase (hyaluronidase), are capable of penetrating oral epithelium in areas of irritation and producing lysis of the collagen fibers and ground substance in the underlying connective tissue. This then could result in a region which is more susceptible to bacterial invasion.

COMMENTS

The search to determine the etiopathogenesis of dental caries and periodontal disease demands that every possible informative avenue be investigated. Enzymology appears to present one of the most promising means of studying the function and metabolic status of the salivary glands and oral tissues. In addition, enzyme measurements can be valuable tools for use in evaluating the influence of saliva and its contents on the structures of the oral cavity.

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*Assistant professor, department of research, Tufts University School of Dental Medicine.

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Relation of human abnormalities of structure and function to abnormalities of the dentition. II. Mongolism

Russell S. McMillan, D.D.S., Dr.P.H., Barry's Bay, Ontario, Canada, and Mark Kashgarian, M.D., M.P.H., Memphis, Tenn.*

Anomalies of the oral cavity were studied in 174 institutionalized patients with mongolism. The incidences of (1) congenitally absent teeth, (2) teeth exhibiting abnormal morphology, and (3) high palatal formation were higher in the group with mongolism than in the total group of 767 patients studied. A low prevalence of carious lesions and a high prevalence of periodontal disease were observed in the patients with mongolism.

The differentiation of mongolism from other diseases rarely causes any difficulty. Øster[1] has selected ten signs which he regards as "characteristics" of mongolism and which are rare in normal individuals. He calls them "cardinal signs." One of these signs is the abnormal sizes, shapes and alignment of teeth which Øster noted in 71 per cent of patients with mongolism. Øster neither states the characteristics of abnormal teeth nor does he differentiate between deciduous and permanent dentitions. Ingalls and Butler[2] in a study of 47 mongoloid children found that 21 had abnormalities of the permanent dentition and defects (ablation or malformation) generally confined to the maxillary central and lateral incisors. No mention was made of the deciduous dentition or the existence of additional dental defects.

In the study being reported, 174 pa-

tients with mongolism out of the total 767 subjects were included. Table 1 illustrates the distribution by age and sex of these patients. A preliminary examination of both the male and female patients with mongolism at Lapeer (Michigan) State Home and School indicated that males exhibited dentitions less suitable for study than females. The male patients exhibited a high rate of premature loss of the permanent teeth. This difference may be associated with a difference in the distribution of the two sexes by ages, although this possibility was not investigated further. The cottage chosen for study at Lapeer housed only female patients with mongolism. The choice resulted in a high percentage (75.86 per cent) of females in the total group studied. The remainder of the individuals studied were selected from the nursery of the Coldwater (Michigan) State Home and School.

Table 2 presents the developmental defects, individually, found in the oral cavities of all of the patients with mongolism. The defects observed to have proportions significantly higher than those of the total group of 767 subjects studied at the institutions were (1) congenitally absent teeth (35.06 per cent, $P < .001$), (2) teeth exhibiting abnormal morphology (34.48 per cent, $P < .01$) and (3) high palatal formation (33.33 per cent, $P < .001$). The criteria utilized in the establishment of these anomalies were (1) for congenitally absent teeth, any teeth missing bilaterally beyond the expected eruption period, any tooth missing unilaterally beyond the expected eruption period when proper space was not evident and the tooth was not palpable in the soft tissues, and any bilateral prolonged retention of the deciduous teeth; (2) for abnormal morphology, any obvious detectible deviation from Wheeler's[3] description of the anatomy of the individual teeth; and (3) for high palate, a subjective and dichotomous classification as either "high" or "normal."

Table 1 • Distribution of subjects with mongolism by sex and five-year age groups, in institutions 1958-1959

	No.	Per cent
Male	42	24.14
Female	132	75.86
Total	174	100.00
0- 5 years	48	27.59
6-10	32	18.39
11-15	19	10.92
16-20	26	14.94
21-25	20	11.49
26-30	12	6.90
31-35	9	5.17
36-40	6	3.45
40 +	2	1.15
Total	174	100.00

These defects are representative of faulty development in early embryonic life. Arey[4] has estimated that the palatal processes begin fusion at about the ninth week. Schour and Massler[5] have estimated that the deciduous tooth bud is initiated at about the fifth week. Ingalls[6] has classified mongolism as an entity associated with some type of insult at approximately the eighth week of gestation.

Examinations revealed that the defects of the dentition were observed with a relatively high frequency in individuals having permanent dentitions as well as in individuals having deciduous dentitions. The defects of abnormal morphology and congenitally missing teeth were confined to the deciduous and permanent maxillary and mandibular incisors except for one instance of congenitally missing maxillary second bicuspids.

The abnormalities of morphology of the teeth are pathognomonic for mongolism. The morphologic characteristics of these teeth add to the impression of microdontia reported by Spitzer and Mann[7] and by Nash.[8] Abnormalities of the deciduous incisors were characterized by underdevelopment of the two lateral

Table 2 • Distribution of defects of the oral cavity for mongoloid patients, by individual patient, institutionalized group 1958-1959

	Total group n=767		All mongoloid patients N=174		Mongoloid patients permanent dentitions* N=80		Mongoloid patients mixed dentitions* N=38		Mongoloid patients deciduous dentitions* N=48	
	No.	%	No.	%	No.	%	No.	%	No.	%
Hypoplasia, incisal third	112	14.60	5	2.87	1	1.25	4	10.53	0	—
Hypoplasia, middle third	44	5.74	0	—	0	—	0	—	0	—
Hypoplasia, gingival third	27	3.52	1	.57	1	1.25	0	—	0	—
Hypomaturation	98	12.78	10	5.75	3	3.75	5	13.16	2	4.17
Congenitally absent teeth	102	13.30	61	35.06	38	47.50	15	39.47	8	16.67
Supernumerary teeth	3	.39	0	—	0	—	0	—	0	—
Abnormal morphology	155	20.21	60	34.48	28	35.00	14	36.84	18	37.29
Abnormal texture or color	47	6.13	2	1.15	0	—	1	2.63	1	2.08
Edentulous	12	1.56	8	4.60	0	—	0	—	0	—
Other defects of the teeth	70	9.13	8	4.60	1	1.25	1	2.63	6	12.50
Normal dentition	293	38.20	35	20.11	8	10.00	10	26.31	17	35.42
Cleft lip	0	—	0	—	0	—	0	—	0	—
Cleft palate	8	1.04	1	.57	0	—	0	—	1	2.08
Cleft lip and cleft palate	6	.78	1	.57	0	—	1	2.63	0	—
High palate	145	18.91	58	33.33	37	46.25	14	36.84	7	14.17

*Excluding edentulous persons.

mamelons (Fig. 1 and 2). The abnormal incisors of the deciduous dentition were thicker labiolingually than expected, whereas the abnormal incisors of the permanent dentition were thinner labiolingually.

The observation of these defects in both deciduous and permanent dentitions suggests two etiological possibilities. First, the insult or deficiency may be operative over a sufficiently long period to include the period of initiation of the deciduous tooth bud and its permanent successor. Second, the anlage of the deciduous tooth bud may contain the potential of growth for both the deciduous tooth and its permanent successor. The findings of Hutchinson,[9] Pasini,[10] Cavallaro,[11] Bauer[12] and others have shown that the morphology of the permanent tooth bud can be influenced by an insult commencing after the sixteenth week of gestation. No data are available which indicate whether an insult, affecting the morphology of the deciduous tooth, affects the morphology of the permanent successor when the insult does not persist until the bud of the permanent successor is activated. Culture of tooth buds in vitro provides a possible technic for testing the hypothesis. Such a study would indicate whether mongolism is the result of a specific temporal insult at approximately the eighth week or whether it is the result of a long-term metabolic abnormality.

A subjective evaluation of periodontal disease and carious lesions was made for 95 patients with mongolism at the Lapeer State Home. These estimates were made because, in the course of the examinations, it was observed that the patients with mongolism exhibited a high degree of periodontal disease and a relatively low degree of caries activity by comparison to

the incidence in other patients examined in the institution.

The low prevalence of carious lesions in patients with mongolism has been noted by Nash[8] and Rapaport.[13] Two possibilities are worthy of consideration for evaluating the significance of a reduced prevalence in patients with mongolism. First, the low rate may be directly associated with some metabolic disturbance characteristic of mongolism, and second, the abnormal morphology of the teeth may be associated with a reduction or diminution of pits and fissures for this diagnostic group.

In the current investigation, 34 per cent of 95 patients with mongolism were estimated to be free of carious lesions on the basis of the examinations with mirrors and explorers.

Sixty-two per cent of the 95 patients with mongolism exhibited a clinically detectible periodontal disturbance. The disturbance particularly affected the region surrounding the mandibular incisors, and was characterized by inflammation of the gingivae and early loss of the teeth (Fig. 3).

Table 3 illustrates the distribution of missing incisors for 80 mongoloid patients having permanent dentitions. A high prevalence of periodontal disease in patients with mongolism had been reported by Nash[8] in 1949 and by Dow[14] in 1951. Several possible causative factors are worthy of consideration in such findings.

Dow[14] has suggested that the periodontal tissues may be undernourished, since the entire circulatory system in patients with mongolism is inadequate generally and particularly the arterioles and capillaries. Inasmuch as the tissues at the median line of the mandible depend on arterioles and capillaries for nourishment, this region presumably would be affected first.

It also should be noted that most patients with mongolism are prognathic and, therefore, the mandibular incisors receive little stimulation from mastication. The pressure from a relatively large, and often protruding, tongue may contribute additionally to the early loss of the mandibular incisors.

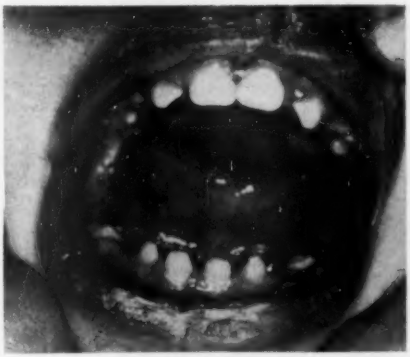

Fig. 1 • Note missing deciduous lateral incisors and diminution of lateral mamelons of mandibular deciduous central incisors

Fig. 2 • Diminution of labiolingual dimension with fanning-out of lateral mamelons of mandibular central incisors

Fig. 3 • Fourteen year old patient showing periodontal disturbance and premature loss of mandibular incisors

Table 3 • Analysis of mongoloid patients with permanent dentitions having missing incisors*

Number of missing incisors	Age	Number of subjects
8	20, 28, 31, 33, 35, 38, 39, 42	8
4 mandibular and 3 maxillary	23	1
4 mandibular and 2 maxillary	30, 36	2
4 mandibular and 1 maxillary	28	1
4 mandibular	18, 18, 20, 21, 22, 24, 29, 33, 34, 34, 37	11
3 mandibular	18, 20, 25	3
2 mandibular and 1 maxillary	28	1
2 mandibular	18, 19, 21, 21, 24, 24	6
2 maxillary	26, 28	1
1 mandibular and 1 maxillary	18	1
1 maxillary	21, 23, 24, 29, 38	5
Total individuals with one or more missing incisors, but not edentulous	Average age 26.8	41
Total individuals with no missing incisors	Average age 20.4	39
Edentulous, not included in this table	Ages 30, 34	2

*Excluding congenitally absent teeth.

The examination of extracted teeth from this group of subjects indicated that the roots of the teeth were much shorter than would be expected for normal teeth. Such roots, of course, would provide a diminished area for periodontal attachment.

Lack of adequate toothbrushing may be partially responsible for the early development of periodontal disease in patients with mongolism. However, in the total population included in the current study, the patients suffering from cerebral palsy did not exhibit the extreme degree of periodontal disease observed in the patients with mongolism. Finally, the inverse relation of carious lesions to periodontal disease may be associated with an unknown metabolic disturbance characteristic of mongolism.

SUMMARY

One hundred and seventy-four institutionalized patients with mongolism were studied to determine type, time or origin and the possible physiologic relation of anomalies of the oral cavity to mongolism.

The defects observed to have proportions significantly higher in the group with mongolism than in the total group were (1) congenitally absent teeth, (2) teeth exhibiting abnormal morphology, and (3) high palatal formation.

Abnormalities of morphology were noted in both deciduous and permanent teeth. The deciduous tooth bud originates considerably earlier than its permanent successor; however, it is possible that the potential of growth for both is contained in the original deciduous bud.

A low prevalence of carious lesions and a high prevalence of periodontal disease were observed in this diagnostic group.

CONCLUSIONS

1. Further investigation is required to determine whether the developmental defects of teeth in patients with mongolism are the result of an acute or chronic

prenatal insult and such an investigation may prove important in determining the etiology of mongolism.

2. A study of the high prevalence of periodontal disease and low prevalence of carious lesions in patients with mongolism may prove useful in determining the etiology of caries and periodontal disease.

3. In those few instances in which the diagnosis of mongolism is uncertain, an evaluation of the teeth may be of considerable importance in achieving a definite diagnosis. *Box 8*

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*Assistant professor, preventive medicine, Institute of Pathology, University of Tennessee.

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Methods of Science • If we are to use the methods of science in the field of human affairs we must assure that behavior is lawful and determined. We must expect to discover that what a man does is the result of specific conditions, and that once these conditions have been discovered, we can anticipate and to some extent determine his actions. . . . This possibility is offensive to many people. *B. F. Skinner.*

Effect of mercury-alloy ratio on the physical properties of amalgams

W. T. Sweeney, A.B., and*
Claire L. Burns,† A.B., Washington, D.C.

Data on flow, dimensional change on setting, strength, rate of loading and mercury content were determined for four typical dental alloys of widely different particle size. Specimens were made using mercury-alloy ratios of 1:1, 4:1, 10:1 and the manufacturer's recommended ratio. For mercury-alloy ratios ranging from the manufacturers' recommended values to a ratio of 10:1, there was little observed effect on the compressive strength. The flow results all fell within the limits of A.D.A. Specification No. 1 with the exception of those for alloy 1 at the 1:1 ratio. Clinically, the results indicate that extreme accuracy is not necessary in measuring the amount of mercury to be mixed with the alloy provided there is an amount equal to or in excess of the manufacturer's recommended ratio. Care must be taken to remove the excess mercury and to pack the amalgam firmly.

1. INTRODUCTION

Silver amalgam is used in more tooth restorations than are all other materials. The dentist has a critical interest in how the mercury-alloy ratio affects the properties of the finished tooth restoration, because he fabricates the amalgam by the addition of the mercury to the silver-tin-copper-zinc powder. It has been reported by many workers that the properties of dental amalgam are dependent on the amount of mercury left in the condensed alloy, usually referred to as "residual mercury." The method used in making dental amalgam is conducive to a variable composition in the resulting filling. This variability arises from addition of an excess of mercury during mixing, and subsequent removal of part of the mercury by expressing it through a cloth and by rejecting part of the mercury-rich mass during packing.

Phillips and Swartz[1] reported values for the residual mercury content of 100 amalgam fillings removed from extracted teeth. The average mercury content was 45.4 per cent; the type of preparation had little effect on the final mercury content. Healey and Phillips[2] studied the causes of clinical failures and concluded that 40 per cent of them were due to faulty manipulation and 26 per cent to fractures. This points up the practical importance of knowing which factors affect the strength of the amalgam restoration.

Eames[3] has reported very satisfactory clinical results on amalgam restorations that were mixed with a mercury to alloy ratio of about 1:1. He found high one-hour compressive strength, approximately 40 per cent of the one-day strength. Taylor and co-workers[4] reported about 15 per cent of the one-day strength at one hour for a 5:8 ratio. Rate of loading the specimens may be a factor in this variation as well as mercury-alloy ratio.

This report presents measurements on

Table 1 • Analysis of silver alloys for dental amalgam

Alloy*	Silver %	Tin %	Copper %	Zinc %	Type
1	70.0	26.3	3.8	—	Pellets
2	70.0	26.6	2.6	0.8	Medium cut
3	69.0	26.7	3.8	0.5	Fine cut
4	70.0	26.0	3.5	0.5	Regular cut

*Analysis on batches obtained in 1957-59.

four silver alloys considered representative of the types currently used in this country. They are on the American Dental Association's List of Certified Materials. The compositions of the four alloys (Table 1) are basically the same except that one does not contain any zinc. However, the four are quite different in particle size. Alloys differing in particle size were selected so that the information obtained would be applicable to amalgams in general use.

2. TEST PROCEDURES AND RESULTS

2.1 Compressive Strength • Specimens were made using mercury to alloy ratios of 1:1, 4:1, 10:1, and the manufacturer's recommended ratio. The recommended ratios were 7:5, 9:5, 8:5, and 8:5, respectively, for the four alloys. The mixes were made by placing 0.4 Gm. of alloy with the predetermined amount of mercury in the capsule with the pestle. In most instances two or three mixes were necessary. All the materials used to make the compressive strength specimens were triturated with a mechanical amalgamator (Wig-1-bug) for the time recommended by the manufacturer. Alloys 1 to 4 were mixed for 12, 8, 7, and 13 seconds, respectively. A uniform technic was used to remove the excess mercury from each increment of the mixed amalgam by squeezing it through a cloth immediately before hand packing it in a steel mold

Table 2 • Compressive strengths of amalgams[a]

Hg/alloy ratio	Head speed in./min.	Alloy 1		Alloy 2		Alloy 3		Alloy 4	
		C.S.[b] 10^3 psi	S.D.[b] 10^3 psi	C.S. 10^3 psi	S.D. 10^3 psi	C.S. 10^3 psi	S.D. 10^3 psi	C.S. 10^3 psi	S.D. 10^3 psi
1	0.003	29.6	0.7	33.7	1.4	25.8	1.2	28.5	1.5
Rec[c]	0.003	32.2	0.4	34.8	0.8	29.2	0.9	33.1	0.7
2	0.003	32.5	1.2	34.4	0.8	29.4	0.6	31.6	1.0
4	0.003	33.5	1.2	35.2	0.8	29.1	0.7	32.2	0.5
10	0.003	34.5	.6	34.5	0.7	28.9	1.5	33.1	1.5
1	0.010	37.9	0.3	38.3	0.4	33.9	1.5	38.7	0.9
Rec	0.010	34.1	1.0	40.2	1.3	38.4	1.2	42.3	1.1
4	0.010	35.5	1.6	38.2	1.3	36.2	1.3	42.1	1.4
1	0.025	48.6	0.7	49.3	1.5	43.6	1.5	48.3	2.4
Rec	0.025	50.0	1.4	54.8	1.6	49.3	1.8	47.9	1.2
4	0.025	49.7	1.3	50.5	2.8	40.6	2.0	44.8	2.3
1	0.050	49.0	1.9	47.3	3.0	44.4	3.2	53.8	2.6
Rec	0.050	46.5	2.2	53.2	3.1	51.4	1.8	55.1	3.3
4	0.050	46.2	2.5	54.6	1.3	50.6	2.3	54.8	1.5
1	d	40.4	0.7	40.2	1.4	38.5	1.1	40.0	2.5
Rec	d	40.9	0.6	44.8	0.6	40.1	1.0	43.9	1.0
4	d	43.0	0.6	45.7	0.7	40.0	0.6	42.2	1.4

a. Specimen age: 24 hours.
b. C.S. = Compressive strength; S. D. = Standard deviation.
c. Recommended by manufacturer: No. 1, 7 to 5; No. 2, 9 to 5; Nos. 3 and 4, 8 to 5.
d. Pendulum type testing machine; loading rate 100 lbs./min.

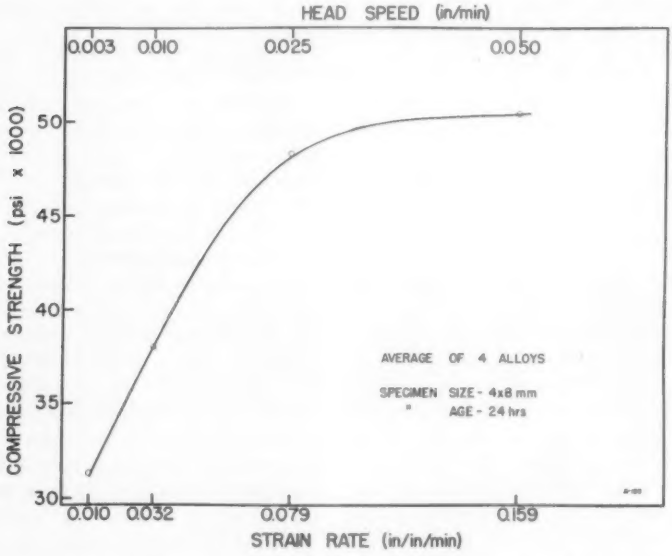

Fig. 1 • Effect of strain rate on compressive strength of amalgam

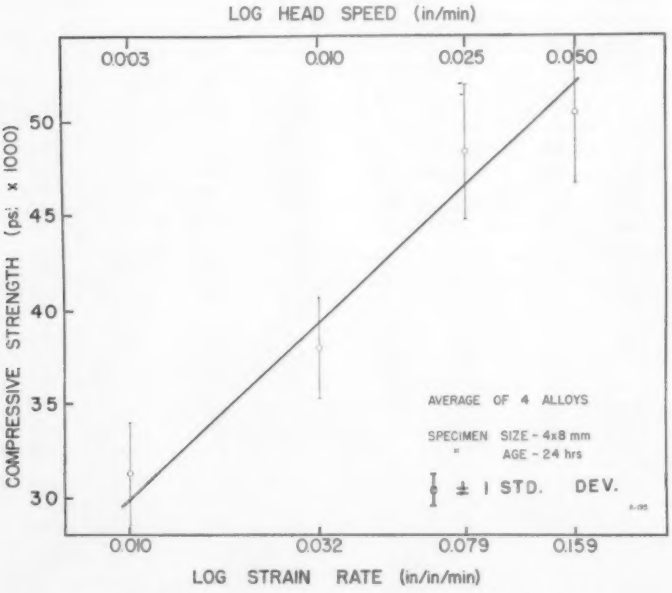

Fig. 2 • Effect of strain rate on compressive strength of amalgam

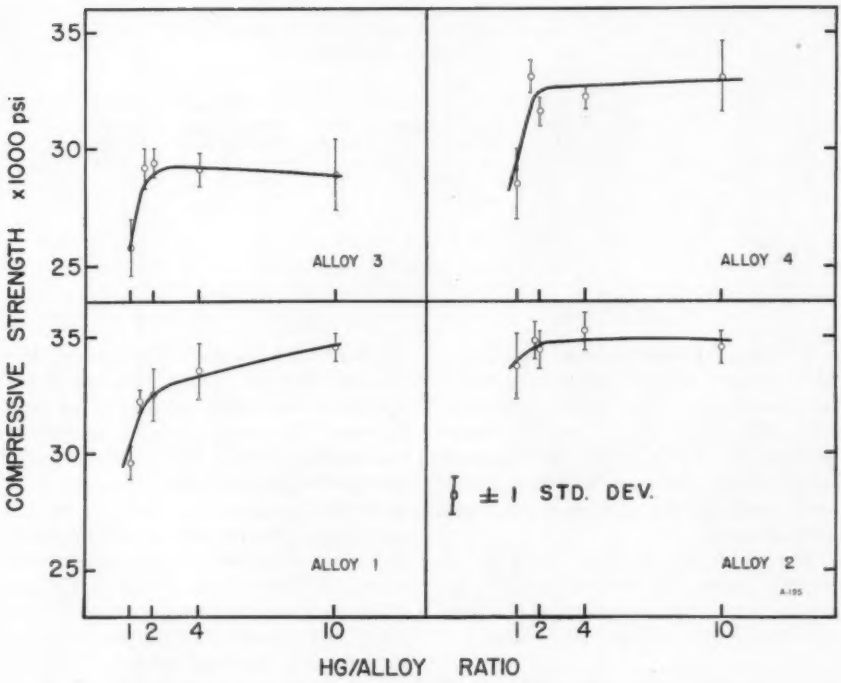

Fig. 3 • Effect of mercury/alloy ratio on compressive strength

4 mm. in diameter by 8 mm. long. The packing was accomplished with a 1.5 mm. plugger with a load of approximately 4 to 6 pounds. This corresponds to about 2,000 psi. A larger plugger was used to remove excess mercury during packing. The top of the specimen was cut off with a razor blade before removal from the mold. Packing was completed in 6 to 8 minutes from the beginning of the mix.

The effect of rate of loading was studied for head speeds of 0.003, 0.010, 0.025, and 0.050 in. per minute, using an Instron testing machine that applies a strain at a uniform rate. Also, for comparison, data were obtained using a pendulum-type machine at a loading rate of 100 pounds per minute. The results are shown in Table 2 and Figures 1, 2, and 3. The data reported are the average for six specimens 24 hours old. The vertical lines on the graph represent ±1 standard deviation.

2.2 Flow • The flow specimens were prepared by the same technic as that used to

Table 3 • Effect of mercury-alloy ratio on flow of amalgam

Hg/alloy ratio	Flow				
	Alloy 1	Alloy 2	Alloy 3	Alloy 4	Average
	%	%	%	%	%
1	5.0	2.2	3.6	2.5	3.3
Rec	3.2	1.3	2.4	2.8	2.4
4	3.8	1.8	1.8	2.0	2.4
10	2.8	1.5	2.2	1.5	2.0
Avg.	3.7	1.7	2.5	2.2	2.5

Table 4 • Effect of mercury-alloy ratio on setting change

Hg/alloy ratio	Dimensional change							
	Alloy 1		Alloy 2		Alloy 3		Alloy 4	
	Mech. μ/cm	Hand μ/cm	Mech. μ/cm	Hand μ/cm	Mech. μ/cm	Hand μ/cm	Mech. μ/cm	Hand μ/cm
1	−8	10	2	5	2	12	−6	7
Rec	−12	6	−2	4	0	6	−7	4
4	3	10	0	5	4	8	2	6
10	14	13	4	4	8	9	4	8

make the compressive strength specimens. Measurement of flow was conducted as described in the A.D.A. Specification No. 1 for Dental Amalgam Alloy.[5] The values reported in Table 3 are for duplicate specimens for the same mercury to alloy ratios used for the compressive strength measurements.

The data indicate that the flow was slightly higher for the 1:1 ratio, but otherwise the flow appeared to be independent of the mercury-alloy ratio.

2.3 Setting Change • The dimensional change during setting was measured for the four mercury to alloy ratios on specimens made by both mechanical and hand trituration. The test was made according to A.D.A. Specification No. 1 for Dental Amalgam Alloy. All specimens were packed by hand using the same technic as outlined for making the compressive strength specimens. The results are shown in Table 4 and Figures 4 and 5.

The mechanically mixed specimens expanded less in most instances than the manually mixed specimens. All results on hand-triturated specimens were within the specification limits of 3 to 13 microns per centimeter, whereas the values for the mechanically mixed ratios were in most instances below the limit except for the highest mercury to alloy ratio. Alloy 1 did not seem to follow this trend for the 10:1 ratio. It is considered that these rather small variations are of little clinical significance.

2.4 Residual Mercury • The method used for analyzing the mercury content of the amalgam was that of Crawford and Lawson.[6] The values reported are for the mechanically mixed, compressive strength specimens after crushing. The tests were made in duplicate on each of the six specimens. The average of the 12 determinations of the mercury content are presented in Table 5 and Figure 6. The average standard deviation is about 0.7 per cent. The maximum difference in mercury content observed for any individual alloy was 3.2 per cent and in almost all instances the mercury was higher in the amalgam with the greater additions of mercury to the mix. The average mercury content of the four amalgams was 48.5 per cent.

3. DISCUSSION

The flow results on the four alloys indicate that the mercury-alloy ratio has little effect on this property. The flow of specimens with the 1:1 ratio is slightly higher than for most of the alloys. The flow can be interpreted as an index to the early strength for the various mercury-alloy ratios. The major factor in this type of flow test is resistance to dimensional change under load soon after the specimens are placed in the equipment. Inasmuch as the test load is applied three hours after mixing, all the specimens must have developed considerable strength by that time.

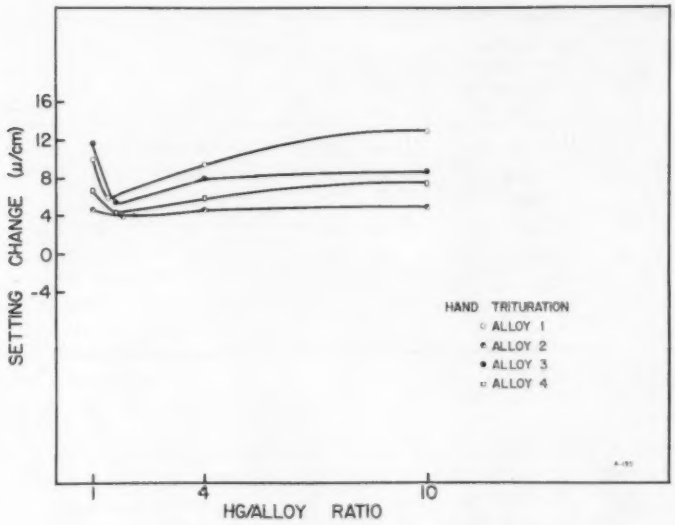

Fig. 4 • Effect of mercury/alloy ratio on setting change

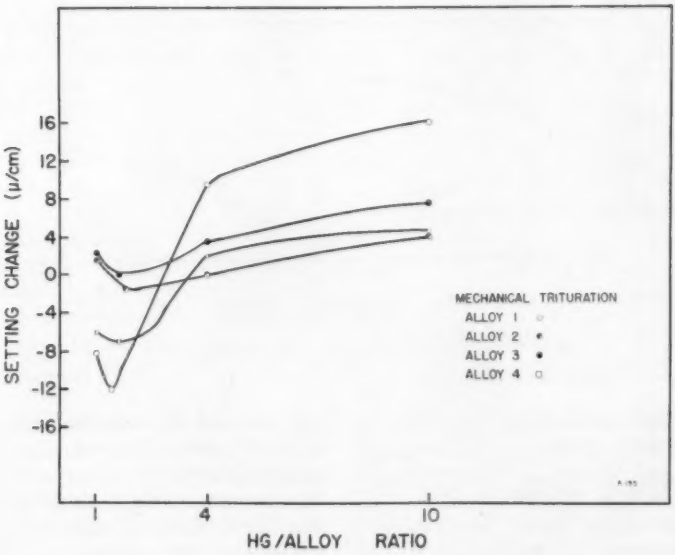

Fig. 5 • Effect of mercury/alloy ratio on setting change

Table 5 • Relation between mercury-alloy ratio and residual mercury

Hg/alloy ratio	Residual mercury							
	Alloy 1		Alloy 2		Alloy 3		Alloy 4	
	%	S.D.	%	S.D.	%	S.D.	%	S.D.
1	48.4	1.3	46.4	0.5	45.8	0.8	48.4	0.4
Rec	48.8	0.2	47.7	0.6	45.5	0.4	49.4	0.4
2	49.8	0.7	47.2	0.6	46.3	0.9	49.2	0.5
4	50.4	0.9	48.6	0.8	47.5	0.8	50.1	0.4
10	51.6	0.3	48.6	1.4	48.5	0.7	51.6	1.4

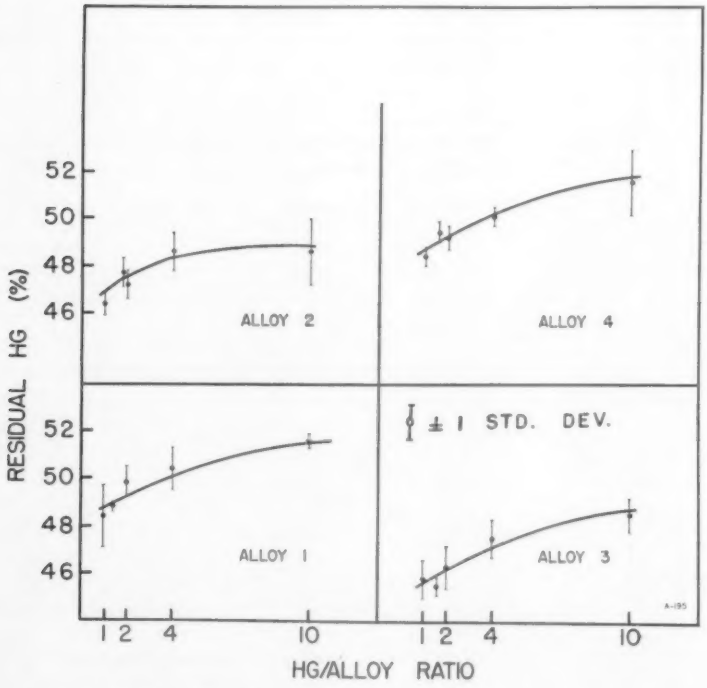

Fig. 6 • Effect of mercury/alloy ratio on residual mercury

The four alloys when triturated by hand at mercury-alloy ratios between 1 and 10 met the setting change requirement of A.D.A. Specification No. 1 for Dental Amalgam Alloy. The mechanically triturated specimens, in general, gave lower results, failing to meet the specification requirements in the case of the 1:1 and the manufacturers' recommended ratios. Mechanically triturated specimens with the higher mercury-alloy ratios were generally within the specification limits. However, variations of a few microns per centimeter are considered by the authors to be of little clinical significance.

The amount of residual mercury was larger in the specimens made from higher mercury-alloy ratios. However, the standard deviations for any of the individual alloys agree to within plus or minus 1 per cent. This small difference in mercury content in most instances cannot be correlated with the physical properties measured. The data show that a good technic for packing these alloys resulted in consistently uniform amalgam for mercury-alloy ratios of from 1:1 to 10:1. Thus, the method of packing and the mixing technic may be more important than the mercury-alloy ratio used.

The values for compressive strength are dependent on the rate of strain of the specimens. A change in head speed from 0.003 to 0.050 inch per minute gives an increase in compressive strength of the order of 50 per cent. It is thus essential to include the rate of strain when reporting the strength of amalgam alloys. The values for the strength of the materials tested vary with the log of the strain rate as shown in Figure 2.

A résumé of the effect of mercury-alloy ratio on compressive strength is shown in Table 6 which gives the relative strength for a typical set of data at a head speed of 0.003 inch per minute, using the recommended ratio as the basis for comparison. The percentage change is not more than 7 per cent for the mercury-alloy ratios greater than those recommended by the manufacturer. The variations in strength for all ratios above 1:1 are, in general, within the experimental error, indicating that the strength is independent of the mercury-alloy ratios tested.

Table 6 • Relative strengths of amalgams[a]

Hg/alloy ratio	Relative compressive strength[b]			
	Alloy 1 %	Alloy 2 %	Alloy 3 %	Alloy 4 %
1	92	97	88	86
Rec	100	100	100	100
2	101	99	101	96
4	104	101	100	97
10	107	99	99	100

a. Specimen age: 24 hours.
b. Head speed: 0.003 in./min.

4. SUMMARY

Data on flow, dimensional change on setting, strength, rate of loading and mercury content for four typical amalgam alloys are reported. The mercury-alloy ratio is shown to have very little effect on the physical properties investigated for ratios equal to or greater than the manufacturers' recommended ratios. For the technic employed the compressive strength at 24 hours was found to differ by only a few per cent for ratios ranging from the manufacturers' recommended ratio to 10:1 ratio. The flow results all fall within the limits of A.D.A. Specification No. 1 with the exception of those for alloy 1 at the 1:1 ratio. All setting changes for hand-triturated materials meet the requirements of the specification. Setting changes for mechanically triturated materials are somewhat below the limits for the lower ratio mixtures. The clinical significance of the results is of considerable importance; they indicate that extreme accuracy is not necessary in measuring the amount of mercury to be mixed with the alloy provided there is an amount equal to or in excess of the manufacturers' recommended ratio. Care must be taken to remove the excess mercury adequately and to pack the amalgam firmly.

*Chief, dental research section, National Bureau of Standards.

†Chemist, dental research section, National Bureau of Standards.

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Properties of resilient denture liners

Robert G. Craig, Ph.D., and Paul Gibbons,† D.D.S., M.S.,*
Ann Arbor, Mich.

The hardness, weight change, tensile strength, tear strength, and color stability of ten resilient denture liners were determined. The properties of these soft denture liners illustrate that the selection of a particular liner cannot be based on any single property. The selection of a material will be influenced not only by the properties available but also by the particular case involved.

The use of resilient or soft denture liners increasingly has come into favor for various applications in prosthetic dentistry. A few preliminary studies have been reported to date on the various applications and properties of the resilient or soft denture base liners.[1-8] The purpose of this paper, therefore, is to present a study of some of the more important physical properties of soft denture liners and wherever possible to relate the laboratory tests to clinical applications.

The physical properties selected for investigation were chosen on the basis of clinical use of the resilient liners. The hardness, weight change, tensile strength, tear strength and color stability were determined on specimens stored dry and in distilled water. In addition, the adhesion of the various liners to a poly(methyl methacrylate) denture base plastic strip was evaluated, as well as the effect of the liners on the transverse strength of the base material. Finally, the relation between the thickness of the liner and the resiliency was established.

EXPERIMENTAL MATERIALS

The ten commercial products investigated are listed in Table 1, with the name of the manufacturer, type of material and method of processing. These materials were selected on the basis of including products having a variety of chemical compositions and processing methods.

Dura Base, Flexene, Soft Line, Soft Oryl and Treatment Reliner are modified acrylic products, are supplied in the powder-liquid form and are processed at room temperature (Type A). Silyne and Softline are silicone rubber materials that also are processed at room temperature (Type B). Plialite and Verno-Soft are modified acrylic materials of the powder-liquid type but are heat-processed (Type C). Nelson's Soft Lining is supplied in thin, preformed sheets and is a heat-processed vinyl type (Type D).

These materials, with the possible exception of the heat-processed types, are sold as temporary liners, and, if used for this purpose, all the products may provide adequate service. A poor quality for some particular physical property such as color stability, therefore, may not rule out a product as a temporary treatment liner.

METHODS

The properties of the materials were measured at room temperature. The properties of the liner materials would be somewhat different at mouth temperature, although the room temperature

Table 1 • Resilient liners and manufacturers

Product	Type	Processing method	Manufacturer
Dura Base	A	Room temp.	Reliance Dental Mfg. Co.
Flexene	A	Room temp.	Cosmos Dental Products, Inc.
Soft Line	A	Room temp.	American Consolidated Mfg. Co., Inc.
Soft Oryl	A	Room temp.	The William Getz Corp.
Treatment Reliner	A	Room temp.	H. D. Justi & Son, Inc.
Silyne	B	Room temp.	Dental Perfection Co.
Softline	B	Room temp.	Kerr Mfg. Co.
Plialite	C	Heat	Acralite Co., Inc.
Verno-Soft	C	Heat	Vernon-Benshoff Co.
Nelson's Soft Lining	D	Heat	Nelson-Kramer Corp.

values should be in the same relative order as those measured at 37°C. Wherever possible, values for poly(methyl methacrylate) heat-cured denture base materials will be shown to serve as a basis for comparison.

The hardness values were determined with a Shore *A* Durometer, which indicates the relative resistance of a material to indentation with a load applied to the indenter. The hardness values were measured on 2-mm.-thick liner specimens 24 hours after processing and at intervals of 1 day to 20 weeks after storage in distilled water.

The change in weight of the liners after storage in water for various periods of time was determined by weighing 48 by 48 by 2 mm. liner specimens on an analytical balance at definite times after preparation and placement in water.

The tensile and tear strengths were determined on an Instron Testing Machine at a deformation rate of 10 inches per minute. The tensile specimens were dumbbell-shaped, and the tear specimens were crescent-shaped. The original values were determined on the liner materials after a minimum of 48 hours, in order that polymerization of the self-curing materials would be reasonably complete. Some of the specimens were stored in distilled water for 20 weeks, the tensile and tear specimens cut out, and the strength values were determined.

The adhesion of the liners to a cured acrylic resin surface was determined by measuring the force required to continue stripping the liner from the plastic surface. The adhesion of the liners was measured against a smooth plastic strip, a roughened plastic strip, and a smooth plastic strip after storage in distilled water for four weeks.

The effect of the resilient liners on the transverse properties of acrylic materials was evaluated by determining the transverse deflection and strength of acrylic resin strips with and without liners. The plastic strips were 2.5 by 10 by 65 mm. and the thickness of the liners was 2 mm.

The effect of thickness of the liners on the resilience was determined by measuring the Shore *A* Durometer value for various thicknesses of the liners attached to a cured acrylic base.

The color stability was evaluated by two methods. The first method used was the ultraviolet lamp test, described in American Dental Association Specification No. 12 for Denture Base Resins, in which the color change is noted after an exposure period of 24 hours. The second method used was a water storage test in which the color change was observed after storing the liner specimens in distilled water for 20 weeks at 26°C. (78.8°F.).

Table 2 • Durometer hardness of resilient denture liners*

Product	Shore A hardness, original†	Shore A hardness after storage in water‡	
		4 weeks	20 weeks
Dura Base	53	58	63
Flexene	66	83	88
Soft Line	52	52	52
Soft Oryl	51	62	69
Treatment Reliner	52	88	92
Silyne	48	60	52
Softline	56	56	56
Plialite	78	86	86
Verno-Soft	85	85	83
Nelson's Soft Lining	51	50	51

*Heat-cured poly(methyl methacrylate) durometer hardness equals 100.

†Measured 24 hours after processing.

‡Stored in water at 26°C.

Table 3 • Weight change of resilient denture liners on storage in water*†

Product	Weight % change, 4 weeks	Weight % change, 12 weeks
Dura Base	+2.2	+3.3
Flexene	−0.4	−0.9
Soft Line	+0.3	+0.6
Soft Oryl	+0.6	+1.0
Treatment Reliner	+2.7	+3.8
Silyne	+2.4	+3.6
Softline	+3.2	+4.3
Plialite	+1.7	+3.0
Verno-Soft	+1.6	+2.0
Nelson's Soft Lining	+1.3	+2.2

*Water sorption values for poly(methyl methacrylate) range from 1.5 to 2.0 per cent.

†Stored in distilled water at 26°C.

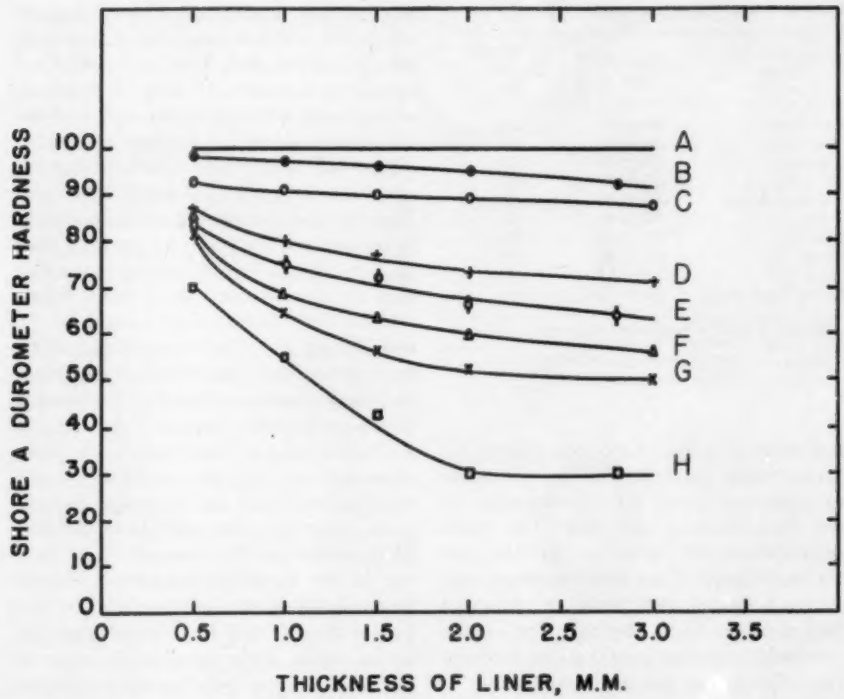
RESULTS

The changes in hardness and weight on storage in distilled water over a period of 12 to 18 weeks have been reported.[3] As previously indicated, the hardness values changed little after 4 weeks in water, whereas the weight changes continued up to the end of the test (18 weeks). In order to present as complete a report as possible on resilient liners, the original hardness values and the values after 4 and 20 weeks' storage in water are reported in Table 2. In addition, the changes in weight after 4 and 12 weeks' storage in water are listed in Table 3.

Hardness • The resilient liner materials may be classed into four groups on the basis of the original hardness and the change observed on storage in water. The first of these groups includes liners such as Nelson's Soft Lining, Soft Line, Silyne, and Softline, which were soft after processing (48 to 56 Shore *A* hardness) and remained soft after storage in water. The second group consists of Soft Oryl and Dura Base which had Shore *A* hardness values of 51 and 53 after processing, and increased to 69 and 63 after storage in water for 20 weeks (see Table 2). The third group includes materials such as Treatment Reliner and Flexene, which were initially soft (52 and 66 Shore *A*) and became hard on storage in water (92 and 88 Shore *A*). The fourth group contains liners such as Plialite and Verno-Soft which were fairly hard after processing (78 and 85 Shore *A* hardness) and remained quite hard after storage in water (86 and 83 Shore *A* hardness). In all instances a major portion of the change in hardness took place within the first four weeks. It should be emphasized that these harder materials will be softer at mouth temperatures.

The hardness values reported for the various liner materials supplied in the powder-liquid form may be varied by changing the powder-liquid ratio. In general, the more liquid used for a given amount of powder, the softer the final processed liner. These liner materials also may be prepared in harder forms by using less liquid. For example, the powder-liquid components of Flexene can be proportioned in such a way that a tensile strength of about 3,000 psi may be obtained in the processed liner, which is approximately seven times the value reported when the recommended powder-liquid ratio is used.

It should be mentioned that the hardness values obtained with the Shore *A*



Effect of liner thickness on durometer hardness for heat-cured poly(methyl methacrylate): A; Treatment Reliner, B; Flexene, C; Soft Oryl, D; Dura Base, E; Silyne, F; Softline, G, and Soft Line, H

Durometer depend on the thickness of the liner and the properties of the supporting base. The values listed were measured using a glass plate as the supporting substance. Glass has a Shore *A* hardness of 100 compared to approximately 100 for acrylic resins, and therefore, the values reported would be nearly the same as if they had been supported by poly(methyl methacrylate). Glass and acrylic resin both have values of 100 because this is the maximum of the scale.

The measured durometer hardness of the liners is an indication of the resilience of the materials. Since the resilience is a function of the thickness of the liners, it was of clinical interest to establish the effect of thickness on the durometer hardness of the various materials.

The change in durometer hardness as affected by liner thickness for seven of the ten liners is represented in the illustration. All the liners were supported by a 2.5 mm. thick piece of heat-cured acrylic resin. As might be expected, the softer the liner material, the more pronounced the effect of thickness on the hardness. For all liners, however, little effect of thickness was observed for thicknesses greater than 2 mm. The clinical significance of these data is that for soft liners the use of a layer more than 2 mm. thick does not materially increase resiliency.

The original durometer hardness values and those determined after storage in water indicate various clinical uses for the resilient liner materials. The softer mate-

Table 4 • Tensile strength of resilient liners*

Product	Original† (psi)	After 20 weeks in water‡ (psi)
Dura Base	180 ± 15	190
Flexene	450 ± 20	620
Soft Line	170 ± 20	200
Soft Oryl	220 ± 20	480
Treatment Reliner	400 ± 30	530
Silyne	390 ± 40	330
Softline	230 ± 15	300
Plialite	400 ± 40	490
Verno-Soft	250 ± 15	780
Nelson's Soft Lining	560 ± 15	660

*Tensile strength of heat cured poly(methyl methacrylate) is approximately 7,000 psi.
†Measured after a minimum of 48 hours in air.
‡Stored in distilled water at 26°C.

rials that become hard on storage in water might be suggested for instances of treatment in which conditioning of the oral tissues is desirable. The more permanently soft materials might be useful in instances of undercut areas or with patients having congenital or acquired oral defects. Thus, the selection of the particular material would depend on the requirements of the individual case.

Weight Change • The weight changes of the various liners after storage for 4 and 12 weeks in distilled water are reported in Table 3. All the materials have continued to change weight after 12 weeks. Interpretation of the percentage weight change is complicated by the fact that the materials may pick up water and lose plasticizer at the same time. In order to establish completely the behavior of the resilient liners in water, solubility values would be required. Solubility values were not determined, but the loss of plasticizers is indicated to some extent by the change in hardness, and the water sorption of poly(methyl methacrylate) (1.5-2.0 per cent).

After 4 and 12 weeks in water, all the liner materials had increased in weight except Flexene, which had decreased in weight by 0.4 and 0.9 per cent respectively. This decrease may be attributed to more loss of plasticizer than pickup of water, as substantiated by the rough, grainy surface. Soft Line and Soft Oryl increased in weight 0.6 and 1.0 per cent, respectively, after 12 weeks, and had the two lowest values for increase in weight. Verno-Soft and Nelson's Soft Lining increased in weight by 2.0 and 2.2 per cent. The remaining materials changed weight by amounts of +3.0 to +4.3 per cent after 12 weeks in water. Of interest is the fact that the two silicone rubber liners, Silyne and Softline, increased in weight by 3.6 and 4.3 per cent. This suggests that fillers have been used that absorb water since the water sorption values for pure silicone rubbers are much lower.

On the basis of these data it would be expected that all the materials would pick up oral fluids and gradually develop a bad taste and odor. Soft Line and Soft Oryl would possibly show the least fouling of the materials examined. Flexene loses enough plasticizer to affect the surface texture of the liner. Some manufacturers claim their material to be antibacterial, but as yet this claim has not been proved.

Tensile Strength • The original tensile strengths of the resilient liners are recorded in Table 4, with the values obtained after 20 weeks in water. The original tensile strength values ranged from 170 to 560 psi, which are low when compared to approximately 7,000 psi for poly(methyl methacrylate). These lower values are the result of modifications of the plastic or addition of inert plasticizers or both. All the acrylic and vinyl type liners increased in strength after storage in water. Verno-Soft, Soft Oryl, Flexene, and Treatment Reliner showed substantial increases, Plialite and Nelson's Soft Lining moderate increases, and Dura Base and Soft Line little, if any, change in tensile strength. The tensile strength of the two silicone rubbers did not change noticeably after storage in water, although the values for Silyne appeared to

decrease slightly, and those for Softline increased somewhat.

The increase in the tensile strength of the acrylic and vinyl materials on storage in water is a reflection of the loss of plasticizers and a resulting increase in the stiffness and strength of the materials. The increase in strength, however, may be obtained at the expense of other properties such as resiliency and in some instances the tear resistance of the material.

Tear Strength • The tear resistance or the tear strength of the resilient liners is particularly important. The magnitude of the tear strength will indicate how easily the liner will tear away at the periphery of the denture. The tear strength also will have an influence on whether or not the liner will strip away from the denture base where clinical failures are most often found.

The tear strengths of the resilient liners are listed in Table 5. The original values as well as the tear strengths after storage in water are included. The majority of the liner materials, including Plialite, Verno-Soft, Soft Oryl, Soft Line and Dura Base, had tear strengths between 29 and 51 pounds per inch. Nelson's Soft Lining and Treatment Reliner had higher values of 74 and 77 pounds per inch. Flexene had the highest tear strength of 260 pounds per inch and the silicone materials, Silyne and Softline, had the lowest values of 24 and 15 pounds per inch, respectively. The low tear strengths of the silicone materials is evidenced clinically by the tendency of these products to tear at the periphery of the denture.

The tear strengths of the liners after storage for 20 weeks in water generally increased or remained constant. Flexene and Soft Line were exceptions, with the tear strength values showing a decrease. The increases in tear strengths after storage in water probably resulted from the loss of small amounts of plasticizers which caused an increase in the stiffness. The decrease in tear strength of Flexene was possibly due to excessive loss of plasticizer, such that the continuity of the specimen was impaired. The Soft Line material is composed of an acrylic powder and an alcohol-type liquid, and again the loss of this plasticizer presumably resulted in the decrease in tear strength.

Table 5 • Tear strength of resilient liners

Product	Original* lbs./in.	After 20 weeks in water† lbs./in.
Dura Base	29 ± 1	37
Flexene	260 ± 20	134
Soft Line	38 ± 3	30
Soft Oryl	51 ± 3	67
Treatment Reliner	77 ± 6	104
Silyne	24 ± 2	26
Softline	15 ± 1	20
Plialite	40 ± 2	90
Verno-Soft	38 ± 3	93
Nelson's Soft Lining	74 ± 5	100

*Measured after a minimum of 48 hours in air after processing.

†Stored in distilled water at 26°C.

The tear strength values may be interpreted clinically by stating that materials with low values will tear rather than strip away from the base material, even though the adhesion of the liner to the base is not high. Liners with high tear strengths may strip off the base plastic if the adhesion value is low, but when the adhesion value is sufficiently high, they may tear rather than strip from the base plastic.

Adhesion • Regardless of the desirable properties of a liner, if it does not adhere well to an acrylic base the material will not function satisfactorily. The adhesion of the liners to an acrylic base, measured as the force required to strip a liner specimen 1 inch wide from a precured acrylic base material, is reported in Table 6. The adhesion values were measured after processing against smooth and roughened acrylic surfaces. Adhesion values also were determined after storing the processed specimens in water for four weeks.

Table 6 • Adhesion of resilient liners to acrylic resin bases*

Product	Smooth acrylic base original† (lbs./in.)	Smooth acrylic base after 4 weeks in water‡ (lbs./in.)	Rough acrylic base original† (lbs./in.)
Dura Base	10 ± 1	12 ± 1	21
Flexene	34 ± 3	35 ± 3	Liner tore
Soft Line	8 ± 1	8 ± 1	—
Soft Oryl	17 ± 2	18 ± 2	26
Treatment Reliner	Liner tore	30 ± 3	Liner tore
Silyne	Liner tore	Liner tore	Liner tore
Softline	Liner tore	Liner tore	Liner tore
Plialite	Liner tore	—	Liner tore
Verno-Soft	13 ± 1	—	Liner tore
Nelson's Soft Lining	11 ± 1	—	21

*Measured as the force required to strip a liner specimen 1 inch wide from a precured acrylic base.
†Measured after a minimum of 48 hours in air after processing.
‡Stored in distilled water at 26°C.

Four weeks was felt to be sufficient storage time since most of the hardness and weight changes have taken place within this period.

Some of the liner materials would strip cleanly from the acrylic base material, whereas other products would tear within the body of the liner rather than strip from the base material. Plialite and Treatment Reliner apparently adhered well to the acrylic base, because although the liners tore rather than stripped from the base, the tear strengths of these liners were high, having values of 40 and 77 pounds per inch, respectively. The adhesion of the silicone rubber liners to the acrylic resin base may or may not be adequate since the tear strength of 15 to 24 pounds per inch for these materials is low, and therefore, the liners tore rather than stripped from the base material. Verno-Soft, Nelson's Soft Lining, Dura Base, Soft Oryl, and Soft Line had adhesion values of 8 to 17 pounds per inch, whereas Flexene had a high value of 34 pounds per inch. It appears from these data and clinical results that an adhesion value of 10 pounds per inch is satisfactory for clinical use of the liner materials.

The adhesion of the liner materials to the acrylic base was not affected by storage in water for four weeks, which is a factor in the practical use of these products. Roughening the surface of the acrylic base prior to processing the resilient liners approximately doubled the adhesion values. These data indicate that the surface of the denture base should be roughened, as well as being clean and dry, before applying the resilient liner.

Effect on Transverse Properties of the Base • A satisfactory resilient liner should have no detrimental effect on the acrylic base. The transverse deflection values at a load of 3,500 Gm. for a number of clear acrylic base materials are listed in column 2 of Table 7. In column 3, the transverse deflection results of the same series of acrylic bases with liners attached are reported. The difference between these two values is indicated in Table 7 as the deflection change, which represents the effect of the liner on the base material.

These data show that Verno-Soft and Dura Base were the only materials that significantly increased the stiffness of the base material. Interpreted clinically, this means that in general any decrease in the transverse properties of the base as a result of removal of material is not regained by application of the resilient liners. The attachment of Soft Line to an acrylic base reduced the transverse strength so that the 3,500 Gm. transverse

Table 7 • Effect of resilient liners on the transverse deflection of an acrylic base

Product	Deflection of acrylic base (mm. at 3,500 Gm.)	Deflection of base plus liner (mm. at 3,500 Gm.)	Deflection change (mm.)
Dura Base	0.9	0.5	−0.4
Flexene	1.1	1.1	0.0
Soft Line	1.0	Broke	—
Soft Oryl	0.7	0.7	0.0
Treatment Reliner	0.8	0.9	+0.1
Silyne	0.5	0.6	+0.1
Softline	0.8	0.7	−0.1
Plialite	0.6	0.5	−0.1
Verno-Soft	0.7	0.4	−0.3
Nelson's Soft Lining	0.6	0.7	+0.1

Table 8 • Color stability of resilient liners

Product	Ultraviolet lamp test	Water storage test, 20 weeks
Dura Base	Noticeable change (pink orange)	Pink to orange pink
Flexene	No change	Pink to light pink
Soft Line	Slight change	No change
Soft Oryl	Moderate change (pink orange)	Pink to brown pink
Treatment Reliner	Marked change (pink to yellow white)	Pink to tan
Silyne	No change	No change
Softline	No change	No change
Plialite	No change	Pink to light pink
Verno-Soft	Slight change	Light pink to lighter pink
Nelson's Soft Lining	Marked change (dark pink & brown areas)	Pink to orange pink

deflection load could not be supported.

The transverse deflection values at a 5,000 Gm. load and the transverse strengths also were determined. The deflection values at the higher load substantiated the results obtained at the lower load. The liners, except for Soft Line, did not have any measurable effect on the transverse strength of the acrylic base.

Color Stability • Although the color stability of materials classed as temporary liners may be of questionable importance, the use of materials of this type for more permanent applications make this property of some interest. The color stability of the liner materials was evaluated with the accelerated ultraviolet lamp test and a water storage test. The results of these tests are listed in Table 8, and the color changes occurring from these two test procedures were in general agreement.

The lamp test showed that no color change occurred with Plialite, Flexene, Silyne and Softline. Slight color changes were observed for Verno-Soft and Soft Line, whereas noticeable to moderate color changes were found for Dura Base and Soft Oryl. Pronounced color changes were observed for Nelson's Soft Lining and Treatment Reliner.

In general, the water storage test was more severe than the lamp test. The silicone products and Soft Line did not change color on storage in water. Plialite, Verno-Soft and Flexene became lighter pink as the storage time in water increased. Nelson's Soft Lining and Dura Base changed from pink to an orange

pink. Soft Oryl changed from pink to a brown pink, and Treatment Reliner became tan on storage in water.

SUMMARY

The physical properties of hardness, tensile strength and tear strength were determined on ten resilient denture liners. The effect of storage in water for 20 weeks on these properties was also evaluated.

The weight change of the liner materials on storage in water, the adhesion of the resilient liners to the acrylic base, the effect of the liners on the transverse strength properties of the acrylic base and the color stability of the materials also were determined.

The hardness data showed that liners are available that, on storage in water, (1) remain soft, (2) change from soft to moderately hard, (3) change from soft to hard, or (4) remain hard. The major portion of the changes in hardness on storage in water took place within two to four weeks after immersion.

All the liners changed weight during storage in water. All but one of the products gained weight, the values ranging from +0.6 to +4.3 per cent.

The tensile and tear strengths generally increased as a result of storing the liners in water, except where excessive amounts of plasticizer were leached out.

The adhesion of the liners to acrylic strips was measured and values between 8 and 34 pounds per inch were obtained, although most of the adhesion values were between 10 and 17 pounds per inch. Two of the acrylic liners had adhesion values high enough so that the liner tore. The silicone rubber products had such low tear strengths that the liner would tear rather than strip away from the acrylic base. Storage in water did not affect the adhesion values. Of importance is the fact that roughening the acrylic surface before processing doubled the adhesion values.

The resilient liners, with one exception, had little effect on the transverse strength properties of an acrylic base. As a result, the removal of any base material in preparation for lining decreases the strength of the denture base.

The color stability was determined using the ultraviolet lamp test and a 20 week water storage test. The results of these tests were in general agreement, although the water storage test was slightly more severe. Three products had good, four materials had fair and three had poor color stability.

CONCLUSIONS

The properties of the resilient liner materials illustrate that the selection of a particular product cannot be based on any single property. The selection of a material will be influenced not only by the properties available but by the particular case involved.

One method for making a selection is on the basis of critical properties for a particular application. If the liner is to be used in a treatment denture for a limited time, then the change in hardness might be the most important factor followed by effect of the liner on the strength of the base and the adhesion of the liner to the base material. Certainly color stability, water sorption and strength properties would be of secondary concern. On the other hand, if the liner is to be used in a more permanent situation, then the color stability, change in surface texture as a result of loss of plasticizer, water sorption and tear strength also would be of primary concern.

*Assistant professor of dentistry, School of Dentistry, University of Michigan.

†Associate professor of dentistry, School of Dentistry, University of Michigan.

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An experiment in continuing professional dental education in New Mexico

David F. Striffler, D.D.S., M.P.H., Santa Fe, New Mexico; Morris H. McMichael,† Ed.D., and William B. Runge,‡ Ed.D., Albuquerque*

The Principles of Ethics of the American Dental Association[1] states in part, "Every dentist has the obligation of keeping his knowledge and skill freshened by continuing education through all of his professional life." New Mexico's dentists realized that the only way to continue their education was to initiate their own education programs. In this article the programs they began are discussed and evaluated.

Albuquerque dentists have to travel a minimum of 660 miles in one direction or 850 miles in the opposite direction for a postgraduate course at a dental school. This is about as far as from New York City to Cincinnati or New York City to Chicago, respectively (see illustration). At least that was the condition before 1956.

There were indications[2] that New Mexico's dentists wanted and would support a continuing education program in New Mexico. So, in 1955, the New Mexico Department of Public Health, with the approval and counsel of the New Mexico Dental Association and the University of New Mexico, submitted a prospectus to the W. K. Kellogg Foundation requesting financial aid in establishing a continuing education program. The Foundation awarded a four-year grant of $10,500 in February of 1956.

As evidence of good faith the state association set aside $1,000 as a contingency fund. The Kellogg grant was apportioned in decreasing amounts each year with $1,500 set aside annually for evaluation. During the fourth year the program was self supporting, except for evaluation.

THE PROGRAM

The continuing education program was divided into four phases: centralized seminars, decentralized traveling seminars, working conferences on dental health and out-of-state refresher courses in dentistry for children.

Centralized Seminars • In February 1956 (and in each succeeding February), a centralized postgraduate dentistry seminar was held for two days on the university campus in Albuquerque. It was emphasized that these seminars were not "just another dental meeting," but were

an opportunity to return to school for intensive refresher work. The campus and classroom atmosphere, as well as the pretests and post-tests, helped to maintain this emphasis. The council on dental health of the state association selected the subject areas and two outstanding guest professors; the extension division of the university provided classroom, registration and luncheon facilities. The New Mexico Department of Public Health handled promotion and finances.

Attendance at the first seminar more than justified the efforts. Seventy out of the then 194 New Mexico dentists attended (36 per cent). The next three annual seminars were attended by 35, 31 and 31 per cent respectively, but with more dentists in attendance each year. Dental hygienists and federal dentists are not included in the totals. The centralized seminars, with registration fees of usually $20, were self supporting from the start.

Decentralized Traveling Seminars • A decentralized traveling seminar was attempted only in 1956. Six-hour sessions were held at four varied locations. Whereas about 12 more dentists attended when the seminars were brought to them, the extra expense and duress of travel were considered not worth this small attendance gain.

Working Conferences on Dental Health • The working conferences on dental health as a type of continuing education activity have been described elsewhere.[3]

Refresher Courses in Dentistry for Children • Each year the state council on dental health selected three dentists from a long list of applicants to attend two-week refresher courses in dentistry for children at the University of Michigan. Each dentist was paid only his round-trip fare and tuition. Selection was based on date of application, geographical loca-

Location of dental schools in relation to Albuquerque, N. Mex.

Table 1 • Centralized seminars: scores on pretest and post-tests

Year	Subjects presented	Number of exams	Pretest			Post-test			
			Average Number Right	Wrong	Per cent right	Average Number Right	Wrong	Per cent right	Improvement
1956	Dentistry for children Caries control	64	44	24	65	59	9	87	22
1957	New drugs Periodontics	61	45	26	63	61	10	86	23
1958	Roentgenography Anesthesia	52	59	44	57	72	31	70	13
1959	High-speed technics Practice management	39	57	32	64	67	22	75	11

tion, date of graduation and anticipated years of practice.

EVALUATION

Two University of New Mexico professors were employed to conduct the evaluation. One was an associate professor of physiology for two years before his sabbatical leave. The other was an associate professor of education. A before and after picture of each education activity was drawn and evaluated.

CENTRALIZED SEMINARS

Objective tests, prepared in cooperation with the guest professors, were used to determine the level of information of each dentist before and after attending some type of inservice educational activity (see Table 1 for pretest and post-test scores).

Statistically significant improvement between pretest and post-test scores was found and could have been due to effective instruction.

In addition, at the conclusion of each seminar, dentists were asked to complete a subjective evaluation questionnaire (used also in planning subsequent activities). A summary from these questionnaires and from opinions of those associated with the administration of the program follows:

"Caries Control" and "Dentistry for Children" • All dentists responding to the 1956 questionnaire concluded that the seminar was worthwhile. Sixty-seven per cent felt they had gained many specific ideas; 27 per cent, a few; and 6 per cent, none. The most frequently changed theories were in relation to cavity preparations, diet and caries control and pulp therapy. Considered least helpful were the discussion of dentifrices and the clinical demonstrations. Most respondents preferred to have the seminars held in Albuquerque and felt that two days was sufficient. The evaluator visited many dentists in their offices and reported that they were enthusiastic about the seminar. After the seminar several requests from dentists for the establishment of a caries-activity test service at the New Mexico Department of Public Health Laboratory were received. Such a service has been established and is being used.

"Periodontics" and "New Drugs" • Eighty-three per cent of the respondents to the 1957 questionnaire replied that this seminar had

been worthwhile; 13 per cent, some value; and 4 per cent, no value. The dentists expected specific ideas presented on periodontal disease, Vincent's treatment and treatment of gingivitis to help them later in their practices.

"Roentgenography" and "Anesthesia" • All of the dentists responding to the 1958 questionnaire indicated that the seminar had been worthwhile. Ninety per cent felt that previous theories had been changed and ten per cent did not. Forty-two per cent felt that they needed to improve radiation hygiene for patients and themselves. Fifteen per cent decided their emergency drugs were inadequate. After this seminar, the Albuquerque District Dental Society requested the New Mexico Department of Public Health to arrange a voluntary radiation control survey. A radiation hygiene survey was conducted throughout the state in 1960.

"Practice Management" and "High-Speed Technics" • All respondents to the 1959 questionnaire concluded that the seminar had been worthwhile and that they had gained specific ideas that would help them in their practices. Seventy-nine per cent felt that their previous theories had been changed whereas 21 per cent did not. Twenty-eight per cent felt better informed on high-speed technics and 23 per cent felt better informed on dental service corporations and group plans. The respondents felt that the seminar was valuable for future community service. Seventeen per cent of the dentists commented that this seminar was the best one held to date. After this seminar the state council on dental health proceeded with plans for a dental service corporation; incorporation papers have been drafted.

Subjective questionnaire answers at all four seminars indicated strong acceptance on the part of the dentists in attendance. The apparent changes in theories and the listings of specific ideas to be used later in practice demonstrated the effectiveness of each presentation. It is difficult to say that any one of the seminars was more successful than another. All seminars helped some dentists, depending on their practice needs.

In general the dentists were outspoken in their criticism of guest professors who tended to be dogmatic. They also expressed a need for more time for give-and-take discussion with the professors.

TRAVELING SEMINARS

Identical traveling postgraduate seminars in dentistry for children and in oral surgery were held in 1956 in four scattered locations. Pretests and post-tests were administered to the dentists attending. The improvement in scores was satisfying as well as statistically significant. Average percentage-point increases for each city were: Albuquerque 15, Santa Fe 21, Roswell 18 and Las Cruces 16.

UNIVERSITY OF MICHIGAN REFRESHER COURSES

The dentists attending the University of Michigan course were given a pretest and post-test consisting of 190 objective questions prepared by the instructors of the course (see Table 2 for the pretest and post-test scores).

The percentage point gain varied from 5 to 37 for the nine dentists tested, and one showed a loss of 18. In the latter instance the post-test was given some time after the course. The dentist did not feel that it was a fair measurement of what he had learned and made little effort to complete the examination to the best of his ability.

The variations in points gained could be due to such factors as experience with children, recency of basic dental training, and the manner in which the dentists applied themselves while at the University of Michigan. However, these scores do indicate gains which seem to show the instruction was effective in most instances.

All dentists attending the course were enthusiastic about it. Three of the dentists have established a group practice limited to children. Several of these dentists have presented "clinics" on dentistry for children before local societies. A New Mexico society of dentistry for children has been chartered since this type of activity began and the society is ongoing.

Table 2 • Out-of-state refresher courses: scores on pretest and post-tests

Year	Dentist	Pretest	Post-test	
		Per cent right	Per cent right	Improvement
1956	A	71	83	12
	B	88	97	9
1957	C	73	88	15
1958	D	38	75	37
	E	65	72	7
	F	64	46	−18
1959	G	69	77	8
	H	67	77	10
	I	65	70	5

WORKING CONFERENCES

"Public Relations" • Eighteen, or 44 per cent, of the dentists attending the 1957 conference at the Lazy Ray Ranch in the Jemez Mountains, completed a subjective questionnaire at the close of the conference. Sixteen felt that the objectives were fulfilled. Only two had doubts. The discussion groups were considered the best feature. All 18 indicated that the workshop had been worthwhile and that they had definite information to take back to their communities. Most of the dentists urged that more workshops be planned.

"Legislation" • The 1958 conference was held at the Tres Lagunas Ranch on the Pecos River. The completed subjective questionnaires indicated that the objectives of developing plans for new dental legislation and exploring other problems of dental health were accomplished. The discussion groups were appreciated because all could participate. New ideas gained included a better understanding of the dental laws needed, those now in existence and the relation of the profession to the forthcoming legislature.

Working conference recommendations have resulted in (1) the establishment of a student loan fund, (2) a fee-schedule survey, (3) a survey of the dental needs of state institutions,[4] (4) plans for a mobile dental unit to serve remote areas, (5) improved welfare dental care policies, (6) plans for a school of dental hygiene and (7) amendments improving the state's dental practice act.

Mail Survey • At the end of the fourth year a comprehensive mail survey of all dentists in the state was conducted to help determine the effectiveness of the continuing education program and to make future plans. Questionnaires were mailed to 227 practicing dentists in New Mexico. Seventy-six (33 per cent) were usable on return (see Results of Mail Survey appended to this article).

Interviews by Evaluator • At the completion of the program the evaluator attempted to interview as many dentists as time allowed. Thirty-one interviews (a 14 per cent sample) were held with dentists from 17 cities. An attempt was made to follow the list of questions included in the mail questionnaire. Additional comments and comparisons were solicited on the four-year continuing education program from all dentists interviewed. The following specific sugges-

tions and remarks were elicited and are in addition to those in Results of Mail Survey:

The caries control diet is difficult to get patients to use.

The lecture on the psychology of handling children has helped me most in my practice.

More attention should be given in our meetings to the psychology of handling and dealing with people.

Our association should definitely continue the seminars and workshops and efforts to obtain a dental hygiene school.

We should consider joint meetings with physicians and pharmacists.

All seminars, workshops and meetings should be announced well in advance of scheduled dates so local dentists can plan to attend.

I like the two-day seminars best and they should definitely be continued.

I like central locations best for the meetings. We can then find entertainment and our families can take care of themselves.

Reports on all meetings and activities should be continued and distributed widely.

I definitely like the mountain workshops so I can get in a little fishing.

The meetings have been very carefully planned. I like the business-like way in which they are conducted—keeping our schedules on time and full.

I am getting too old to change much as a result of the seminars.

Emphasis in all activities should be on practical technics for the general practitioner. Let the specialists go to other centers for their refresher work.

It is hard for me to say which centralized seminar was best. I benefited from all of them some.

We should think more of our relationships with other groups such as governmental agencies, medical doctors, labor unions and so forth.

Many comments made during the interviews were similar to those tabulated in the mail questionnaire. The evaluator enjoyed every interview and has the feeling that nearly 100 per cent of the dentists who participated in the continuing education activities have felt the activities were beneficial. Some derived more benefit from the activities than others, but, with the varying backgrounds of the dentists, this difference is to be expected.

A few dentists were interviewed who had not participated in the continuing education activities. The following answers may give some indication why these dentists did not attend:

I just finished dental school and need to spend my time getting a practice started. I can't afford to take many days off yet.

Since I am alone here it is difficult for me to schedule time off. We have emergencies that I hate to leave.

I live closer to Texas so have attended some of their activities.

Such activities should be for the new and younger men. I will soon retire and do not think my practice could be changed much now.

The younger men in this office usually go to the seminars and I encourage them to do so.

It seems that I just haven't been able to schedule two or more days away from the office for this purpose.

CONCLUSIONS

The nondentist evaluators drew the following conclusions:

1. The efforts of the leaders in the New Mexico dental profession have been rewarded. Many specific dental practices have been improved as a result of the continuing education activities.

2. The funds and time provided by the W. K. Kellogg Foundation, New Mexico Dental Association, the University of New Mexico and the New Mexico Department of Public Health have been well spent and the end result is an improvement of the dental services available throughout this state.

3. All types of continuing dental education were effective and helpful to those participating. Each type of activity has its special objectives and meets the needs of different individuals and groups. Centralized seminars, association meetings, professional literature and refresher courses help individual dentists to keep up to date and utilize the best practice technics. Workshops and conferences benefit the total profession as well as its individual members.

4. During the past four years the services of national experts in the various fields of dentistry have been secured and utilized in the centralized seminars, working conferences and refresher courses. These men have presented the best current information available on the subjects assigned. New Mexico dentists who have continued to participate in these activities should be operating practices which are as modern and up to date as those in any other part of the nation.

5. The same dentists generally continue to participate in the program. Other dentists are not taking advantage of these activities.

6. The four-year New Mexico continuing education program conducted during 1956 to 1959 has been highly successful.

RECOMMENDATIONS

The following recommendations were made by the evaluators for the future development of the program of continuing education:

1. The officers of the New Mexico Dental Association should continue their strong leadership to maintain and expand all types of inservice education for the dentists of the state (see notes after recommendations 5, 6 and 7).

2. Other agencies, such as the New Mexico Department of Public Health, the University of New Mexico and the medical and pharmaceutical associations, should be brought into the future planning of improved health services for the residents of the state.

3. Continued attention should be given to the establishment of a dental hygiene school in the state or in the Rocky Mountain area. (Note: Plans are under way for a school of dental hygiene at the University of New Mexico.)

4. Centralized seminars should be continued once a year or oftener and the subjects planned and publicized well in advance. The services of the best available leaders in the profession for the subject should be obtained as in the past. Location of the seminars should be central for easy access by all members of the profession and where the best facilities are available. (Note: The University of New Mexico Extension Division already has taken over continuing responsibility for the centralized seminars. In cooperation with the state council on dental education, the University of New Mexico successfully held the fifth and sixth centralized seminars in 1960 and 1961.)

5. Working conferences should be planned and continued to help meet the needs of the public and profession. These meetings should be scheduled well in advance and at places most conducive for this type of meeting. (Note: The third working conference on dental health was held in September 1960.)

6. Dentists from the state should continue to attend refresher courses such as the one at the University of Michigan. Also, facilities at other universities could be utilized. Such refresher work should be publicized and supported by the association. (Note: In 1960 and again in 1961, three more dentists attended the two-week refresher course in dentistry for children. The dentists utilized, in part, funds left over from the previous four years.)

7. If the association continues to help support enrollment in refresher courses, the dentists attending should be placed on state association programs to report on the new technics learned. Local demonstrations and clinics could be held.

8. Additional local or area activities such as study groups, seminars and workshops may be desirable and could be developed to serve individual and association needs. (Note: Two study clubs have been formed in Albuquerque and a local working conference has been held there.)

9. Efforts should be continued to interest nonparticipating dentists in the continuing education activities.

An ongoing program of continuing education has been established for, with and by the dentists of New Mexico, who are as far removed geographically from a dental school and formal postgraduate opportunities as any dentists in the country. An opportunity for continuing education had not been present before.

*Director, Division of Dental Health, New Mexico Department of Public Health.

†Assistant director, Division of Extension, Summer Session and Community Services, University of New Mexico.

‡Associate professor of education, University of New Mexico.

1. American Dental Association. Principles of ethics. J.A.D.A. 60:308 March 1960.

2. Summary of dental practice questionnaire. Incidental Items 1:2 Aug. 17, 1954.

3. Phelan, J. K., and Striffler, D. F. The why and how of a state working conference on dental health. J.A.D.A. 56:582 April 1958.

4. Davis, C. H. A survey of the dental needs in state-maintained institutions in New Mexico. Santa Fe, New Mexico Department of Public Health, 1959.

Results of Mail Survey of New Mexico Dentists

PART ONE—For all dentists in New Mexico

1. Please check the three of the following types of activities which you feel are the most valuable to you for continuing education and the improvement of your dental practice:

	Number	Per Cent
a. Attendance at 1–3 day seminars	60	79
b. Study of current periodicals and professional journals	58	76
c. Attendance at dental schools—refresher courses	40	53
d. Reading new books on dentistry	33	43
e. Participation in working conferences	28	37
f. Others: (list) Meetings	4	5
Study clubs	2	3

2. Please check inservice educational activities in which you have participated during the last four years:

a. Reading of books	46	60
Which ones? Oral Surgery	9	12
Endodontics	7	9
General Texts	5	6
Oral Diagnosis	3	4
Dental Yearbook	3	4
Crown and Bridge	3	4
Prosthetics	3	4
Others	14	18
b. Study of current professional journals	59	78
Which ones? ADA Journal	50	66
Oral Hygiene	14	18
Dental Survey	11	14
Journal of Prosthetic Dentistry	9	12
Oral Pathology	8	10
Dental World	7	9
Oral Surgery	6	8
Dental Abstracts	3	4
International Journal	3	4
Others	10	13

c. Attendance at a dental school refresher course

Where	When	How Long	Responses
University of Southern California	1958	3 days	4
University of Michigan	1957	2 weeks	4
University of Texas	1958	2 weeks	4
University of Illinois	1959	1 week	2

Northwestern University	1958	1 week	2
University of Kansas City	1957	2 days	2
Navy Medical Center	1955	1 year	1
University of Oregon	1956	2 weeks	1
			20

d. Attendance at New Mexico or other centralized or traveling seminars (1–3 days)

Where	When	Responses	Per Cent
University of New Mexico	Feb. 1956	14	18
Various locations	Sept. 1956	17	22
University of New Mexico	Feb. 1957	22	29
University of New Mexico	Feb. 1958	24	32
University of New Mexico	Feb. 1959	27	36

e. Please list any other inservice educational activities in which you have participated

Dental Meetings	10	13
Study clubs	8	10
Weekly conferences	6	8
ADA national meetings	5	6
Postgraduate courses	4	5
Visits	3	4

PART TWO—To be answered only by those dentists who have participated in one or more of the New Mexico Dental Association continuing education activities during the past four years.

The following objectives have been listed by the persons in charge of each subject or activity. Please rate each one in which you have participated as to its effectiveness in helping you to improve the dental services which you are *now* providing for your patients and community.

Circle the number on the four-point scale which best describes the effect on your practice or the degree of accomplishment attained in your opinion: 1-no effect; 2-slight modification or change; 3-moderate amount of change; 4-considerable amount of change has resulted.

I. Centralized seminars Date — Subject and objectives	Number of Responses Amount of Change 1 None	2 Slight	3 Moderate	4 Considerable	Mean
1956 "Caries Control"					
1. Increase caries control using fluorine and/or restricted carbohydrate diet	6	11	15	9	2.7
2. Stimulate demand for establishment of a lactobacillus caries activity test service at N. M. Dept. of Public Health Lab.	11	8	11	7	2.4
3. Decrease the use of "attempted caries control" by vitamin therapy, calcium therapy, and therapeutic dentifrices	16	7	6	14	2.4
"Dentistry for Children"					
1. Increase children in your practice	19	7	5	4	1.8
2. Utilize modern pedodontic technics such as pulp therapy on primary and young teeth	8	3	11	10	2.7
1957 "New Drugs"					
1. Increase knowledge of current and new drug therapy	7	16	9	6	2.4
2. Develop more critical attitude before accepting new drug procedures	5	14	13	6	2.5

	"Periodontics"				
1. Increase interest in periodontal therapy	7	10	10	9	2.6
2. Change concept that Vincent's infection is contagious	19	4	4	10	2.1
1958 "Roentgenography"					
1. Improve radiation hygiene	5	4	13	14	3.0
2. Bring x-ray instruments up to date	4	10	10	13	2.9
3. Improve radiographic technics	6	9	8	13	2.8
"Anesthesia"					
1. Improve local anesthesia technics	10	11	6	5	2.1
2. Learn how to handle emergencies in dental offices	8	10	15	3	2.4
1959 "Practice Management"					
1. Modernize practice management technics	7	13	9	9	2.5
2. Institute dental payment plans	12	12	6	6	2.2
3. Utilize auxiliary personnel more effectively	9	14	6	7	2.3
"High-Speed Technics"					
1. Develop more effective use of high-speed cutting instruments	9	12	4	14	2.6
2. Increase operating efficiency	9	9	9	13	2.7

II. Traveling seminar

Date	Subject and objective					
1956	"Dentistry for Children"					
	1. Utilize pulp therapy technics for children	11	7	2	2	1.8
	"Oral Surgery"					
	1. Be more alert for oral cancer	6	3	8	5	2.5

III. Working conferences

Date	Subject and objective					
1957	"Public Relations"					
	1. To provide New Mexico dentists with an opportunity to experience the workshop as a medium for solving group problems and as a group-learning process	1	1	6	12	3.5
	2. To provide an informal setting free from extraneous distractions where (a) dentists from various parts of the state could become acquainted by living, working, and talking together, (b) New Mexico dentists could become acquainted with the various resource people, and (c) all could share experiences and profit thereby	1	2	5	12	3.3
	3. To sensitize the dentists of the state to social changes, present and past, which do affect dentistry	1	5	5	9	3.1
	4. To create fuller awareness on the part of dentists of their professional responsibilities and obligations to the public	0	2	9	9	3.4

5. To stimulate increased participation by individual dentists in their dental association, in dental public health, and in community activities	2	1	8	8	3.2
6. To alert the profession to the growth of group dental care plans—prepayment and postpayment—such as Medicare and union welfare benefit plans; and to set the stage for the discussion of association policies and progress in this regard	3	2	5	9	3.2
7. To enable New Mexico dentists to take an objective view of the dental profession in New Mexico and in its relations with the public, legislature, and press	1	1	8	9	3.3
1958 "Legislation"					
1. To alert dentists to the need for legislation	2	4	9	13	3.2
2. To acquaint dentists with the legislative process	0	9	4	15	3.2
3. To stimulate dentists to work for legislative changes	5	5	8	9	2.8
4. To acquaint dentists with the need for a school of dental hygiene in New Mexico and to stimulate them to work for the establishment of such a school	6	7	5	11	2.7
5. To revamp and modernize the practices of the New Mexico Board of Dental Examiners	3	3	8	13	3.1
6. To secure some support from the Dental Association for the budget of the New Mexico Department of Public Health, and, more specifically, for its division of dental health	4	4	10	10	3.0
7. To create favorable public relations for dentistry in the legislature	1	5	12	10	3.1
8. To acquaint selected legislators with dental problems	0	7	10	10	3.1
IV. University of Michigan—Two-week refresher course in dentistry for children. (Only the 12 dentists attending from New Mexico answer this section.)					
Objectives					
1. Ability to manage or direct the child patient's behavior in a dental chair and the child-parent relationship during the appointment	0	1	1	1	3.0
2. Mastery of the operative and prosthodontic procedures which may be instituted scientifically for the primary and immature permanent dentition	0	1	2	0	2.6
3. A very thorough knowledge of the properties of the materials employed and outstanding skill in the manipulation of these materials	1	0	1	1	2.7
4. Skillful removal of teeth for the age groups being treated and the management of the minor oral surgery problems that arise in a children's practice	1	1	1	0	2.0
5. Practice of modern root surgery and management of any condition involving teeth traumatized during accidents	1	1	0	1	2.3

6. Ability to diagnose and treat any growth, developmental and health problem of childhood which is legitimately within the province of the children's dentist	1	0	1	1	2.7
7. Ample knowledge with which to direct the child's and parent's instruction in an adequate dental health program and to institute all proven preventive measures	1	0	1	1	2.7

All dentists attending any of the preceding activities:

1. What reasons have made you want to attend these inservice educational activities in New Mexico?	Responses	Per Cent
Further education and self-improvement	41	54
Exchange opinions	6	8
Provide better service	2	3
Convenient	2	3
Good selection of courses	1	1
To learn new technics	1	1
2. What methods of publicity have been most effective in getting you to attend these activities?		
Mailed programs and notices	30	39
Knowledge of courses given	8	10
"Word of mouth"	6	8
State journal	3	4
3. Please list the two or three most important specific changes you have made in your own practice methods as a result of any of the above inservice continuing education activities.		
More effective use of auxiliary personnel	15	20
Improved x-ray technics	14	18
New approach to children	7	9
Using high-speed cutting instruments	7	9
New methods in caries control	4	5
New concept of periodontal procedures	4	5
Better use of sedative drugs	3	4
Other	8	10
4. What activities do you feel should be planned and carried out in the future which would help you and the dental profession most in New Mexico?		
Continue seminars	20	26
Expand conferences	8	10
Introduce clinics and workshops	7	9
Educate the public in dental health	5	6
State-level working conference	4	5
Personal relations course	2	3
Prosthetic discussions	2	3
Other	4	5

PART THREE—For dentists who have *not* attended any inservice meetings:

1. Would you please list reasons why you feel you have been unable to attend any of the above activities during the past four years?	Responses
Difficult to schedule	7
Recently began practice	4
Not interested	4

2. Have you received publicity materials and been informed of these activities?

Yes.....11 Comments: (no comments listed)
No..... 0

3. What could be done to make it easier for you to attend such meetings?

More advanced notice	2
Shorter sessions	1
Night classes	1
Nothing	1

4. If you did attend a one- or two-day seminar, what subjects would you most like to have discussed?

Oral surgery	3
Use of auxiliary personnel	2
Diagnosis	1
Psychology of patients	1
Operative dentistry	1
Fixed bridge work	1
Orthodontics	1

5. What other suggestions would you have for your dental association officers in planning future inservice educational activities for the dentists of New Mexico?

Vary locations	1
Get practical lecturers	1
Organize clubs	1
Select courses by dentist poll	1

Art of Healing • Hypnosis . . . is in one of its periodic revivals. Better than trying to put the patient into a trance, is unplanned "suggestion," faith and confidence inspired in the patient by the kind of man his physician or dentist is, and an instinctive rapport between the two. Methods of treatment which ordinarily succeed fail when doctor-patient understanding is absent; less certain therapies work well when trust prevails. This is not a technic to be studied, a set of rules to learn. It is an art to be developed. Some men have a natural "bedside manner," and people love and trust them. Others annoy and make sympathetic understanding difficult. The doctor who possesses this quieting power needs far less aid from anesthetics and drugs. *He* is the remedy. *A. B. Riffle. The Mouth: Its Clinical Appraisal; Anesthesia, Drugs, Diet and Nutrition. American Practitioner and Digest of Treatment, February, 1959.*

reports of councils and bureaus

Workshop on dental journalism

COUNCIL ON JOURNALISM

The first workshop on dental journalism to be sponsored by the Council on Journalism of the American Dental Association and the American Association of Dental Editors was held on March 13 and 14. The sixty-eight participants, representing 25 states and Canada, focused their attention on improvement of the content of dental publications.

Three papers were presented at the opening session: "Editors and Editing for Dental Publications" by Harold Hillenbrand, secretary of the American Dental Association; "Advertising Standards" by John J. Hollister, director of Advertising and Exhibits, and "The Program of the Council on Dental Therapeutics" by J. Roy Doty, secretary of the Council on Dental Therapeutics. Belle Fiedler, president of the American Association of Dental Editors, presided at the first session.

At the second session, workshops were conducted on format, scientific articles, news, editorials, advertising and miscellaneous sections. A chairman and a recorder officiated at each workshop.

The third session of the Conference was devoted to reports of the workshop chairmen and discussion periods. Isaac Sissman, chairman of the Council on Journalism, presided.

SPECIFICATIONS OF AN EDITOR

A dental editor, Dr. Hillenbrand suggested, should combine the best qualities of the dentist, the administrator, the politician, the reader and the writer. He must read to sharpen his knowledge of the society in which he lives; to broaden the culture out of which his opinions and writings must arise; to hone his own thinking on hard facts and the gritty opinion of others; to collect whatever it is he needs to "give out" to others what they need because, literally, the word editing means "to give out."

Every dental editor should fulfill or strive to fulfill these specifications for then, in a paraphrase of the words of E. B. White,[1] "full of his beliefs, sustained and elevated by the power of his purpose, armed with the rules of grammar . . . the

[editor] is ready for exposure" and for service to himself and his profession.

Dr. Hillenbrand stated that editors in the field of dental journalism have, in recent years, made magnificent improvements in the appearance of their publications; their sophistication in the use of type, color and design has greatly increased. It now remains, he said, to match the improvement in these areas with a similar improvement in writing. There must be renewed efforts, as in this workshop, to raise writing in dental publications to its proper level.

ADVERTISING STANDARDS

Mr. Hollister presented a short historical background of the interest in and development of advertising standards by the American Association of Dental Editors, the American College of Dentists and the American Dental Association.

In discussing the present status of advertising standards in dental journalism, he stated that judging from some of the advertising carried by most dental society publications it is difficult to conclude other than that the establishment and administration of sound advertising standards are sadly neglected areas of dental society responsibility.

The reasons for adopting advertising standards fall into three groups: professional or ethical, practical or business, and administrative.

The articles of incorporation of the constitutent and component societies as well as those of the American Dental Association have essentially the same object, although the wording varies somewhat. The article of incorporation of the American Dental Association states clearly that "The purpose and object of this corporation is to encourage the improvement of the health of the public and to promote the art and science of dentistry." Everything that is done by a dental society, whether stated in these or similar words, must square with this statement.

The Principles of Ethics of the American Dental Association has this pertinent section:

> *Secret Agents and Exclusive Methods.* The dentist has an obligation not to prescribe, dispense or promote the use of drugs or other agents whose complete formulae are not available to the dental profession. He also has the obligation not to prescribe or dispense, except for limited investigative purposes, any therapeutic agent, the value of which is not supported by scientific evidence . . .

In the light of this section it would seem imperative that all professional publications adopt appropriate advertising standards to be certain that they are not encouraging violations of the *Principles of Ethics.*

It is good business to have sound advertising standards; operating under high standards commands respect. By calling the attention of prospects to the high professional standards under which a publication operates, the volume of advertising sold can actually be increased.

If all dental publications will adopt high professional advertising standards, dental journalism in the United States will have taken a giant step forward.

COUNCIL ON DENTAL THERAPEUTICS PROGRAM

Competition, Dr. Doty said, is an accepted part of our free-enterprise system, and when this takes the form of stimulating the development of new and better products and new and better services, the public interest is well served. However, in a highly competitive market there is always the tendency for each advertising group to outdo the other in claiming special virtue for its products. When this tendency proceeds unchecked, the obvious result is greater and greater exaggeration. Certainly this latter situation is contrary both to the public interest and to the best interest of industry itself. Frequently, the consumer loses only in a dollar and cents manner. When drugs or therapeutic agents are involved there is a

possibility of loss in terms of health and the possibility that the professional man unknowingly provides a lower level of service to his patients.

Too often, members of the health professions are unduly complacent in assuming that governmental agencies have the authority to assure suitable restraint in promotional claims for therapeutic products. Two federal agencies have primary responsibilities in the area of drug promotion: the Federal Trade Commission has the authority to take certain actions against false and misleading advertising directed to the public, and the Food and Drug Administration is charged with the enforcement of the federal Food, Drug and Cosmetic Act which is directed, in large measure, toward the labeling of products and the interstate marketing of what are called "new drugs."

The following is a paragraph from an article entitled "FDA New Drug Requirements," written by Dr. Ralph G. Smith, chief of the New Drug Branch of the Food and Drug Administration. Dr. Smith discusses the way in which the new drug requirements are operated, and this paragraph is especially pertinent.

> When an application for a drug is allowed to become effective, it means that we believe that it can be used as directed with safety. It does not mean that we approve the claims of efficacy or necessarily believe them. Not infrequently we take exception in correspondence with the firms to statements in the labeling which we do not believe to be justified. Our objections may or may not be heeded. We cannot prevent an application from becoming effective on the basis of unsubstantiated claims unless such can be definitely related to safety. When a new drug is marketed it is subject to other provisions of the Act which include those of misbranding. In this connection, however, the burden of proof in a Federal court is on the government. We have learned by experience that proof of misbranding usually requires not only expert opinion but also negative data obtained by adequate clinical investigation.

It is not my intent, Dr. Doty continued, to belittle the importance of the federal agencies, but merely to indicate that they are limited in the actions which they may take. The authority which is granted to them is specified in the statutes under which they operate. What I do wish to emphasize is that there is continued need for an agency within the American Dental Association to evaluate the usefulness of the drugs which are marketed to dentists.

There is a great deal of misunderstanding in the profession generally as to the objectives of the Council on Dental Therapeutics, the philosophies behind Council procedures, and the actual procedures employed in evaluating dental drugs and other therapeutic agents.

From its beginning the Council has assumed that the dental profession has an obligation to provide information and guidance both to its own members and to the public concerning commercial products which are claimed to have significance for oral health. Lack of this professional guidance can lead to a partial vacuum which automatically attracts views and claims of an unreliable nature.

The Council's program is designed to evaluate both the inherent usefulness of a product and the promotional claims for the product in its labeling and advertising. Another factor that is considered in reviewing advertising is that the nature of the product be adequately displayed to the dentist through an appropriate descriptive name or a designation of all active ingredients. The important factor is that it should be made as easy as possible for the practitioner to be aware of the nature of the agent he is using.

Any therapeutic product may be submitted to the Council for evaluation and there are no fees involved. The Council on Dental Therapeutics is supported entirely by the American Dental Association —it owes its responsibility totally to the dental profession.

In conclusion, Dr. Doty expressed the hope that the evaluation program of the Council might be helpful to the editors in formulating and administering standards for advertising for their publications.

THE PRESS AND THE DENTIST

The luncheon speaker, Arthur Snider, science editor for the *Chicago Daily News*, suggested that in order to attract more young people to the profession of dentistry the image of the dentist should be redefined so that he is "identified with all the oral tissues, identified with the mouth as a gateway to the body, with the mouth as the organ in which many diseases of the body first become apparent and diagnosed." The public press could be used to help establish this image.

In discussing the handling of a scientific report by the press, Mr. Snider stated that in the news report a distinction should be made between scientific and literary accuracy. The effective accuracy of a written statement depends primarily on the interpretation given it by the reader. Since the newspaper story is addressed to a scientifically unsophisticated audience it should be generalized.

WORKSHOP ON FORMAT

The chairman was L. W. Bimestefer and the recorder Violet Crowley.

It was the consensus of the participants that an attractive format immediately wins the reader's attention. In discussing the size of a publication, economy was stressed. It was agreed that a change of cover design each year gave a publication a fresh look. The first inside page was the preferred position for the table of contents and it was agreed that editors indicate on this page their membership in the American Association of Dental Editors. Lack of departmentalization was recognized as a weakness of many dental publications.

WORKSHOP ON SCIENTIFIC ARTICLES

The chairman was Frank Orland and the recorder E. S. Khalifah. The following sources of scientific articles were suggested: local talent; participants at local meetings—clinicians and essayists; articles appearing in other journals not available to readers reprinted in whole or in part; theses of graduate students as listed in DENTAL ABSTRACTS, and the Mimeographed list made available by THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION of acceptable papers submitted to THE JOURNAL, but not readily publishable because of lack of space.

It was suggested that dental societies are losing a great amount of publishable material because the program chairmen do not insist on essayists preparing written papers in advance of presentation. The benefit of written papers is twofold: the editor has material to publish and the oral presentation is better organized.

It was agreed that the balance between the purely scientific articles and those of a nontechnical nature should be left to the discretion of the editor on the basis of reader interest.

The use of editorial consultants was recommended for evaluating scientific articles as no one editor can be an authority in all areas of dental science.

The group stressed the importance of making scientific literature more readable. Research papers can be particularly hard to read if the author has not kept his readers in mind. Unless an article is readable, it loses its total value, no matter what its message may be—it must communicate.

WORKSHOP ON NEWS

Carl L. Sebelius was chairman and Marvin Sniderman recorder.

In considering what kind of news is most interesting to readers, the group felt that at the district level such topics as fluoridation or Children's Dental Health Week are important. Personal items are of interest only when the individuals mentioned are known to the reader. Announcements of meetings and postgraduate courses were considered an important part of the news section. This section was also recommended as the place to record

official proceedings. The importance of accuracy in all news items was stressed.

The dental editor's role in relation to the public press was considered. It was suggested that better control of publicity is maintained when releases on newsworthy items are prepared and submitted to the press. The amount of publicity is not as important as getting good publicity.

WORKSHOP ON EDITORIALS

Elmer Ebert was chairman and Ralph Rosen recorder.

This group agreed that at least one editorial should appear in each issue. Good editorials stimulate reader interest and are a mark of the publication's maturity. Editorials on controversial subjects should be constructive and dignified and should not involve the policy of the association which the publication represents.

The following three general recommendations were presented in the workshop report: (1) to ensure that editorial expression is based on an understanding of society policy, the editor should be invited to sit in with the executive board—with or without a vote, but with a voice; (2) in the best interests of all publications they should be copyrighted, and (3) editors should lend their efforts to their society's adoption of standards for exhibits and advertising.

WORKSHOP ON MISCELLANEOUS SECTIONS

Ernest Hurley served as chairman and Kenneth Crane as recorder.

The miscellaneous sections of a publication discussed by this group were book reviews, abstracts and auxiliary news.

It was the consensus that two or three well-selected, well-written book reviews were usually sufficient for each issue. The book list published by the American Dental Association Bureau of Library and Indexing Service was suggested as a source list for review books.

During the discussion period opinion was divided on whether or not derogatory reviews should be published. Some editors felt that if a book cannot be reviewed favorably, it should not be reviewed; others felt that dentists should be able to look to their journals for guidance in purchasing books and would benefit from the derogatory as well as the favorable review. It was also suggested that in many instances the author benefits from the critical reviews.

Specialty journals were considered a good source for abstract material. An abstract section encourages further reading and should appeal to the general practitioner. A balance should be maintained between abstracts on general practice and specialties.

Auxiliary news was considered valuable in establishing good liaison with the auxiliary groups.

WORKSHOP ON ADVERTISING

William P. Schoen served as chairman and Betty Satterfield as recorder.

It was the opinion of the participants in this workshop that advertising standards should be established and maintained for at least the following reasons: (1) firms are motivated to cooperate with the profession and conform to certain standards; (2) the standards can be a tool for the business manager in accepting or rejecting advertising; (3) standards are a guide for both the public and the profession on the acceptability of products, and (4) in some instances the standards seem to have motivated certain companies to do more and better research on their products.

Attention was called to *Accepted Dental Remedies* and the reports of the Council on Dental Therapeutics published in THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION. These provide every dental society with a list against

which to check the acceptability of products for advertising.

The group had varied opinions about the location of advertising in a magazine. Most felt that it should be confined to the front or back of the book and not scattered throughout. Some thought it permissible to use on the same page a half page advertisement and a half page of reading matter other than a scientific article. In discussing the ratio of ads to text, it was agreed that no more than half the pages in the magazine should be advertising. It was pointed out that one of the postal rules is that a publication with more than 75 per cent advertising is classified as a catalogue and the mailing rate is higher.

In establishing advertising rates the following should be considered: (1) each magazine should determine the production cost per page and the advertising rates set above that cost, (2) rates of other dental publications with comparable circulation should be examined when new rates are computed, (3) agencies are not likely to place advertising in journals whose rates are too low as their commission would be small.

The following points were brought out in the discussion on how advertising could be obtained: (1) the ideal would be a full-time advertising manager, but this is impractical for most publications, (2) for local journals a good source is local advertisers, (3) a continuing rather than spasmodic direct mail campaign to possible advertisers is more effective, (4) state and local journals have certain advantages to offer the advertiser—their journals usually are retained longer and referred to more frequently than national journals and are more likely to be read in their entirety; (5) advertising agencies should be placed on the mailing list and included in any direct mail campaign of a journal.

Listing in *Standard Rate and Data Service* and in the American Dental Association's *Standard Rates and Data: Dental Publications* was considered helpful in securing advertising. The latter publication is mailed to about 1,200 advertisers.

COMMENT

Emphasis in all the workshops was on improvement of content. Although the theme of the Conference was "The Ideal Dental Journal," in summarizing the two-day meeting Dr. Sissman concluded there can be no one ideal journal—what is ideal for Philadelphia is not ideal for Columbus, Ohio; what is ideal for New York is not ideal for Mississippi. Each journal is published for its own readers—not for other editors, not for the Council on Journalism—but for its own society members. Nevertheless, Dr. Sissman continued, an editor should not accept his journal as *fait accompli,* but should strive continually for improvement and necessary change.

1. Strunk, William, Jr. Elements of style, rev. by E. B. White. New York, Macmillan Co., 1959.

Growth of the National Board

COUNCIL OF NATIONAL BOARD OF DENTAL EXAMINERS

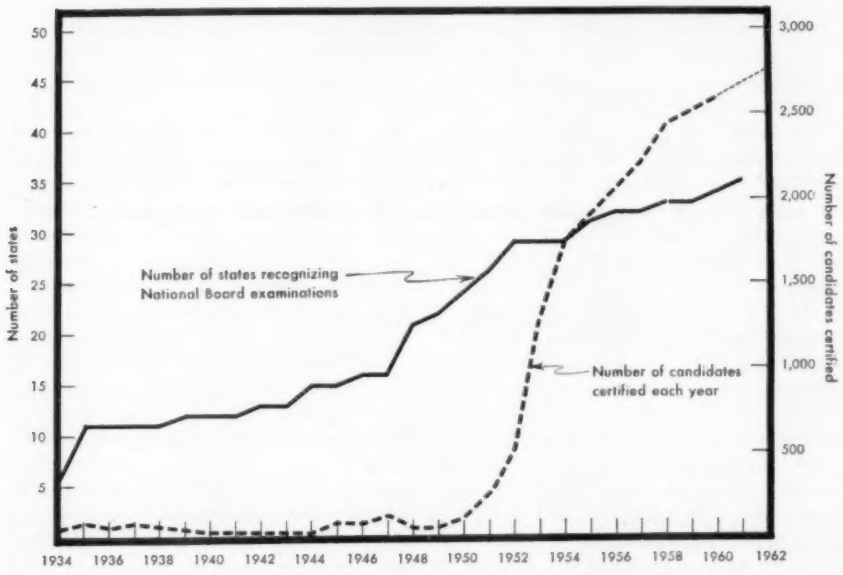
By the end of 1961 over 21,000 National Board Certificates will have been issued: 1,000 from 1934 to 1950; 20,000 since 1951.

National board examinations for dentistry, like national board programs for other health professions, were proposed, considered and discussed for many years before becoming a reality. References in the literature to a national board program for dentistry date back to 1902. H. J. Allen, member of the Dental Board of Examiners for the District of Columbia, recommended that a national board of dental examiners "give an examination . . . equal or superior to the best and strictest given by any state . . ." and that the standard "be set so high as to make it unreasonable for any state board to attempt setting a higher one. . . ."[1] Almost 60 years have passed since Dr. Allen voiced these ideals, but the objectives quoted express the aims of the present Council of National Board of Dental Examiners in conducting its examination program. The program includes a series of written examinations designed as reliable and valid measures of competencies in the sciences related to dentistry and in the principles of dental practice.

It was not a quick or easy move from Dr. Allen's original recommendation to the present Council program. The possibility of a national board of dental examiners was considered and proposed by various leaders of the profession from 1902 through 1924. In 1925, the House of Delegates of the American Dental Association endorsed a proposal to establish a national board. In 1926, the National Association of Dental Examiners (now the American Association of Dental Examiners) approved participation in a national board. In 1928, the American Dental Association authorized the establishment of the National Board of Dental Examiners as a standing committee of the Association. This committee began to function the following year, administered its first examinations in 1933 and certified the first group of candidates in 1934.

Under ideal conditions, acceptance and growth of a national examination program would be gradual. However, conditions were not ideal. There was confusion between the terms "license" and "certificate." There was disagreement on whether the program should properly include a clinical phase. It was not until Association *Bylaws* were clarified in 1937 that the future of the program appeared assured.[2] Since 1937 the *Bylaws* (Chapter IX, Section 110N) have stated clearly that the National Board of Dental Examiners is authorized to conduct written examinations in the principles of dental science and practice, and to issue certificates of qualification in these areas. Clinical examinations and authority to issue licenses are clearly reserved to individual state boards of dental examiners.

As indicated in the illustration, there was little growth in terms of numbers of candidates participating until 1951. The rapid growth which then ensued resulted primarily from added acceptance of the program among state examiners. In the late 1940's and early 1950's, the number of states recognizing the National Board examinations in lieu of local written examinations doubled. State board members recognized the quality of the written



National Board Dental Examinations 1934-1961

examinations. They realized that they could devote more attention to the clinical phases of their examination program when relieved of the chore of constructing and grading written examinations.

One would assume that with half the states accepting the National Board Certificate, half the graduates would participate in the program. As indicated in the illustration, this was not the case in 1951. Twenty-six of the 52 licensing boards recognized the National Board Certificate, but less than 9 per cent of the 1951 dental graduates took the examinations. Participation by graduating students did not match recognition by state boards until 1954 when 58 per cent of the boards accepted the National Board Certificate and 58 per cent of the graduating class took the examinations. Since that time, participation has exceeded recognition, reflecting the position of respect the program has attained with dental students and faculties alike. At present 35 boards, or 67 per cent of the 52 licensing bodies, recognize the examinations in lieu of local written examinations, and 80 per cent of the graduating class participate in the program.

A prediction of the future of National Board Dental Examinations can be no more valid than most predictions. However, if the quality of examinations and services to state boards and candidates remains high and if the present trends continue, there should be 100 per cent participation by 1970 and 100 per cent recognition by 1980. The Council of National Board of Dental Examiners considers this a conservative forecast of the future.

1. National Association of Dental Examiners proceedings 1902, p. 9.
2. American Dental Association transactions 1937, p. 338.

Progress report on accreditation program

COUNCIL ON DENTAL EDUCATION

One of the Council's major areas of responsibility is the accreditation of dental schools, dental hygiene programs and programs for the education of other auxiliary personnel. The Council is also responsible for the accreditation of educational programs in hospitals. As an agency which must attest to the quality of educational programs, the Council is also called upon to advise institutions and other groups as they consider the establishment of new programs or modification of existing ones. This report will be confined to the accreditation programs for dental schools, dental hygiene programs and programs for dental assistants.

It must be recognized that an educational program that is accredited has received this recognition on the basis of the program that was appraised. Programs, however, are subject to constant change as a result of factors such as modification of teaching philosophy, course additions or deletions, faculty changes, financial support and change in physical facilities. In fact, the Council encourages intelligent curriculum experimentation, the development of institutional individuality, and the achievement of excellence without an effort to standardize the curriculums of dental schools. The necessity for periodic program review by the Council on Dental Education is thus readily apparent.

DENTAL SCHOOL ACCREDITATION

It is the Council's objective to schedule formal accreditation visits to each school at seven-to-eight-year intervals, with more frequent visits when circumstances warrant. The Council feels it highly important, particularly in view of the changing concepts in dental education, that this interval should not be exceeded. Although the Council receives information annually from all of the dental schools relative to their teaching programs, it regards periodic site visits by a Council committee as essential to the maintenance of high standards of dental educational programs. Formal statements of accreditation are announced only after formal visits have been made and a committee has been able to report specifically on the quality of a program.

At the present time, there are 47 dental schools in the United States, all of which are recognized as accredited by the Council on Dental Education. In addition, two new programs have not yet been visited by a committee of the Council for purposes of accreditation. These are the School of Dentistry, University of California at Los Angeles, which plans to admit the first freshman class in 1963, and the School of Dentistry, University of Kentucky, which plans to admit the first class in 1962.

A new dental school shall be considered for approval of its first academic year, upon presentation of its plans to the Council on Dental Education. The institution's request to participate in the Association's accreditation program initiates a series of informal and formal visits by representatives of the Council to the dental program during its development. The program is considered for approval as a whole only when its program is in full operation with classes in each of the four academic years.

In an effort to achieve the desired seven-to-eight-year interval between accreditation visits, Council committees visited and evaluated the undergraduate dental teaching programs in 17 schools during 1960. This significantly reduced the number of schools that had not been visited by a full Council committee for a period longer than that considered optimal.

Council committees will have visited an additional nine undergraduate dental education programs during 1961. Five of these were evaluated during the period, January-June, and the remaining four will be visited prior to January 1, 1962. Two of these schools, the University of Puerto Rico and the University of West Virginia, graduated classes for the first time in 1961.

DENTAL HYGIENE PROGRAM ACCREDITATION

There are currently 34 dental hygiene programs which have been evaluated by the Council. Twenty-five of the programs are located in institutions with dental schools, and the remaining nine are located in other institutions accredited and recognized by their regional and state accrediting agencies. Thirty-three of these programs are fully approved and one is designated as provisionally approved. At the present time, three new dental hygiene schools started during 1960 have not been visited by the Council for accreditation purposes. In addition, four new schools now under development in Illinois, Idaho, Maine and New Mexico will accept first-year students in September, 1961. All new programs will be evaluated by the Council prior to graduation of the first class of students. It is expected that additional new programs will be developed in the next several years at approximately the same rate as currently reported.

Council committees will visit 11 dental hygiene programs during 1961. Fourteen programs are tentatively scheduled for evaluation during 1962.

DENTAL ASSISTANT PROGRAM ACCREDITATION

At the 1960 annual session, the American Dental Association approved educational standards for dental assistants. The Council has now published its first listing of schools offering dental assistant training programs. Tentative provisional approval has been granted by the Council to 16 two-year programs and 13 one-year programs in dental assisting, all of which had been approved or provisionally approved by the Education Committee of the American Dental Assistants Association.

The Council's listing of provisionally approved programs also includes several which are less than one academic year in length. These, however, will not be eligible for accreditation, but for a period of time the Council will permit graduates of such programs to take certification examinations administered by the Certifying Board of the American Dental Assistants Association.

Provisional approval of the two-year and one-year programs in dental assisting will not relieve the Council of responsibility for evaluation of these programs for purposes of accreditation. The Council is now establishing accreditation policy and procedure for dental assistant programs, and formal evaluation of these 29 pro-

grams will be started in 1962, with nine programs tentatively scheduled for evaluation during that year. With increased interest in training of auxiliary personnel, it is anticipated that the number of dental assistant programs requesting Council recognition will increase significantly within the next several years.

PROJECTION OF ACCREDITATION ACTIVITIES

During 1962, it is anticipated that Council committees will visit and evaluate 37 education programs. This will include 13 undergraduate dental school programs, 14 programs in dental hygiene, 9 dental assistant programs and one program for dental laboratory technicians.

This projected schedule will provide that by the end of 1962, there will be only one dental school and two programs in dental hygiene that will not have formally been visited for purposes of revaluation by a committee of the Council during the preceding nine years. After the initial evaluation of dental assistant schools beginning in 1962, periodic Council site visits for purposes of accreditation will be scheduled at intervals approximating those established for dental and dental hygiene programs.

A list of approved dental schools, dental hygiene programs, and dental assistant programs may be obtained by writing to the Council on Dental Education, American Dental Association, 222 E. Superior St., Chicago 11.

Additions to the Library

BUREAU OF LIBRARY AND INDEXING SERVICE

The books listed here have been added recently to the Bureau collection. Requests for this material, available on loan to all members of the Association, should be addressed to the Bureau of Library and Indexing Service. There is no charge for borrowing books, but there is a minimal charge of one dollar for each package library. Practically all the dental journals published in the world at present are available to members on loan. Lists of books, package libraries and journals are available on request.

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HEALTH INFORMATION DIGEST, (London)

JELENKO (J. F.) & COMPANY BULLETIN, (New York)

REDWOOD EMPIRE DENTAL NEWS, (Santa Rosa)

REVISTA DE FACULDADE DE ODONTOLOGIA DE PÔRTO ALEGRE, (Rio Grande do Sul)

Review of some dental malpractice cases

Harvey Sarner, LL.B., Chicago*

COUNCIL ON LEGISLATION

While compiling dental malpractice decisions, certain interesting principles and trends emerged worthy of note. The following comments are based on this compilation[1] of 110 appellate decisions in dental malpractice cases reported during the past 30 years covering about 35 states.

About 30 per cent of these cases involve either (1) parts of teeth or roots left in the patient's mouth after extractions or (2) hypodermic needles and instruments broken off and imbedded in the patient's mouth during extractions. The courts are generally sympathetic to dentists in these circumstances, often holding that such events are not of themselves negligent conduct. Dentists are not held to be insurers; that is, they are not legally required to guarantee that such accidents will not result. Except in one instance, where the dentist actually contracted for particular results and was sued on that contract, the courts have not required, as a matter of law, that the dentist exercise unerring judgment.

The standard of care against which the conduct of a defendant-dentist is compared in determining whether he is guilty of negligence is the care and skill normally exercised by the average member of his profession in his community. It is worth noting that departure from approved dental procedures in general use is not in and of itself negligence, or so a New York court[2] said when considering the failure of a dentist to cover the entire tooth surface during the fitting of crowns and jackets, which failure resulted in decay and the formation of abscesses.

Although the courts usually require more than a mere showing of broken roots or burs in the patient's jaws after an extraction, they are likely to uphold a jury finding of negligence where the dentist fails to advise the patient of the imbedded root or instrument. The theory apparently is that a reasonable dentist using reasonable skill and care can break instruments and leave roots, but a failure to inform the patient evidences a failure to satisfy professional and legal obligations to that patient.

Another source of malpractice suits is the administration of anesthetic agents, the basis of legal action in seven of the 110 reported cases. The Massachusetts court[3] upheld a jury finding that a dentist improperly anesthetized his patient by resorting to a simple local injection instead of using gas or the "deep block" method for an extraction, notwithstanding the fact the danger of infection was remote. In New Jersey, the court[4] held that it was

for the jury to determine whether the infiltration method of inducing anesthesia would have been used by a dental practitioner of reasonable skill. In 1961, the New Jersey court[5] considered an action based on the dentist-defendant's administration of an anesthetic agent containing epinephrine without taking the patient's case history. The court held that the doctrine of common knowledge combined with the brochure which accompanied the anesthetic agent, and which described certain situations where epinephrine was contraindicated, was sufficient to deny the dentist's motion to dismiss the case.

Proof of reasonable skill and care in carrying out dental procedures, or the failure to act in such manner, often requires an expert witness to testify as to the standards of practitioners in the community and to compare the defendant's conduct with such standards. The failure of the plaintiff to produce an expert witness is often grounds for the dismissal of the action, the courts determining that without such testimony the jury (or the court) would be incompetent to find that the defendant exercised less than reasonable care. It is interesting to note that at least one court rejected a physician as an expert witness in a dental malpractice case, finding him not to be a proper expert to testify whether a dentist used reasonable care in deciding whether x-rays warranted extraction of an impacted tooth. However, in a recent New Jersey decision[5] there was dictum to the effect that a physician was competent to testify as an expert on methods of anesthetic administration by dentists.

In a few instances, the plaintiff was relieved of the burden of proving the defendant's negligence by the application of the legal principle of *res ipsa loquitur*. Briefly, the application of *res ipsa loquitur* relieves the plaintiff of the duty of providing expert witnesses and creates the presumption of negligence. The burden of proof is thus shifted from the plaintiff to the defendant, and in the absence of further proof, the plaintiff is assured a favorable verdict.

To secure the aid of the *res ipsa loquitur* doctrine, the plaintiff must establish his injury and the background of facts, which, if unexplained, makes the inference of negligence permissible. The conditions usually stated as necessary for the application of the doctrine are three: (1) the accident must be of the kind which ordinarily does not occur in the absence of someone's negligence; (2) it must be caused by an agency or instrumentality within the exclusive control of the defendant; (3) it must not have been due to any voluntary action or contribution on the part of the plaintiff.[6]

In the 110 cases considered, the doctrine of *res ipsa loquitur* was applied in only four instances, that is, when an x-ray machine fell on a patient sitting in a dental chair; when it was alleged that a patient's death resulted from the use of nonsterilized instruments; when a root of a tooth passed into the patient's lung as the result of an extraction; and when the defendant extracted an upper right lateral incisor although he had been engaged to remove only a lower left second molar. The resulting injury appeared to the court to negate the requirement of proof from experts of usual practice of the community. The defendant could hardly prove, for example, that it is not uncommon for dentists in his town to drop x-ray machines on patients.

In an interesting New York case,[7] when a dentist broke a patient's finger in releasing her grip on his body while in "fighting stage" of anesthesia, he was found negligent in either failing to apply restraining straps, improperly applying or fastening wrist straps or placing his body in an improper position.

A California court[8] in 1951 clearly spelled out the general practitioner's duty to refer a patient to a specialist. The court said a general practitioner has a duty to refer a patient to a specialist only

if a reasonably careful and skilled general practitioner would have done so.

In ten cases, the law suit was based upon the alleged extraction of the "wrong tooth." The allegations in some of these cases were absurd; that is, a dentist was sued for removing an impacted tooth because this was not the healthy tooth the physician had mistakenly directed him to remove. The jury held against the dentist, but a logical appellate court giving a logical decision reversed and remanded the case back to the jury. A dissenting judge, however, was unable to understand why a new trial was ordered. In a similar situation, the defendant extracted teeth as indicated by the patient, but not those actually diseased or indicated on the x-rays. The dentist won that case.

Four decisions were based upon multiple extractions asserting that the extraction of more than x number of teeth at a single sitting constitutes negligence. The Michigan court[9] on two occasions considered 16 extractions not to be negligence, per se, and held that the burden lies with the plaintiff to prove by expert testimony the usual practice in the community. In Pennsylvania, the court[10] said it was for the jury to decide whether 23 extractions at a single sitting is "too much." The evidence was held insufficient in a Colorado case[11] to show that a physician and dentist were negligent when at the same time they removed tonsils and extracted 16 infected teeth from a patient who was suffering from rheumatism and chronic "myocarditis" and who subsequently expired.

From these cases, the following general principles emerge:

1. It is advisable to tell the patient of roots or foreign matter imbedded in the jaw or that his jaw has been broken.

2. A dentist is protected as long as he exercises the reasonable care and skill common to other dentists in his community.

3. An undefined number of malpractice suits are unavoidable.

4. When faced with a malpractice action, a dentist should notify his insurer immediately or retain competent counsel.

*Assistant secretary, Council on Legislation.

1. Copies of this compilation are available in limited quantities from the Council on Legislation.
2. Mendelson v. Ginder, 180 N.Y.S. 2d 879 (1958).
3. Vigneault v. Dr. Hewson Dental Company, 15 N.E. 2d 185 (1938).
4. Zulinsky v. Greenblatt, 184 A. 806 (1936).
5. Sanzari v. Rosenfeld, 167 A. 2d 625 (1961).
6. Prosser on Torts, West, 1955, p. 201.
7. Wolfe v. Feldman, 286 N.Y.S. 118 (1936).
8. Simone v. Sabo, 231 P. 2d 19 (1951).
9. Voss v. Adams, 259 N.W. 889 (1935); Nemer v. Green, 25 N.W. 2d 207 (1946).
10. Moscicki v. Shor, 163 A. 341 (1932).
11. Brown v. Hughes, 30 P. 2d 259 (1934).

editorials

More federal assistance to dental research

The recent establishment by the United States Public Health Service of a dental health training and research center in San Francisco[1] provides the nation this year with two new federal research institutions—one on the east coast and one on the west—devoted to the study of dental disorders. The opening of the two institutions—the National Institute of Dental Research in Bethesda, Maryland, May 26 and the National Dental Health Center in San Francisco, July 1—makes 1961 a banner year in the federal government's mounting attack on dental disease.

According to the United States Public Health Service the new west coast center will provide facilities for applied research in the prevention and control of dental diseases and for training dental public health workers in the application of research findings. By means of this double approach the Public Health Service hopes to reduce substantially the time lag between the discovery of new knowledge and technics and their subsequent use by public health and educational personnel.

Among the initial projects which the Public Health Service plans to undertake at the new center will be an investigation of the epidemiology of periodontal disease and a study of the factors associated with the occurrence of cleft lip and palate. Later plans provide for training courses for health agency personnel, dental educators and dentists in private practice. Included in the proposed prospectus are study courses in dental payment planning and dental health education.

The establishment by the federal government of two new institutions devoted exclusively to dental health manifests the gratifying change that has occurred during the last 25 years in the attitude of public health authorities concerning dental disease. As late as World War II some leaders in the public health field refused to recognize the public health implications of dental disorders. Oral infections, they maintained, were personal and of no concern to the community. Fortunately, that concept no longer holds. Public health authorities now are firmly aligned with the dental profession in its fight to conquer dental disorders. Both professions look forward hopefully to the dental health contributions which will be made by the new west coast National Dental Health Center.

1. News of dentistry. J.A.D.A. 63:241 Aug. 1961.

Audio analgesia: safety standards adopted by Council on Dental Therapeutics

Ever since audio analgesia was first announced in 1959, interest in its possibilities has mounted increasingly both among dentists and among sound engineers. Scarcely a month goes by that a new sound device is not offered the profession. Although the psychophysiological usefulness of some of these appliances has been demonstrated, the same cannot always be said of their safety. In November 1960 THE JOURNAL cautioned, editorially, against the use of audio analgesic devices, the safety of which was not known. Specific warning was made concerning the possibility of hearing damage resulting from the improper use or design of sound devices.

Next month's issue of THE JOURNAL will carry a comprehensive report on audio analgesia prepared by the Council on Dental Therapeutics. This report includes a review of the available laboratory and clinical data on the phenomenon of audio analgesia and detailed standards for the safe use and design of audio analgesia equipment.

Two features of the forthcoming Council report deserve special mention. First is its excellence. Those who reviewed the report unanimously support it as a thorough and objective approach to the problem. Second is its authorship. The discussion part of the report was prepared by the Council; the safety standards were prepared by two authorities in the physiology of hearing. Both authorities, members of the medical profession, willingly devoted considerable time and effort in developing a superb set of safety standards. These standards constitute a monument to the beneficial relationship which dentistry enjoys with its sister profession.

The report will serve two purposes. It will provide members of the profession and other interested individuals with the opinions of the Council on the matter of audio analgesia. Further, it will provide a means of determining the safety of a given make of device. Thus, a dentist who contemplates purchasing one of these devices can obtain guidance in his selection.

The Council on Dental Therapeutics continues in its belief that further clinical data must be acquired before it can assess the degree of usefulness of audio analgesia devices. At present it feels that whatever usefulness these devices may have is dependent to some extent upon diversionary or similar psychophysiological factors. Therefore, unless unwarranted claims are made in promotion, this type of equipment will be excluded from the Council's classification program for the time being. The Council will review new data on audio analgesia as they become available and, as necessary, issue further information on this interesting topic.

The Department of Advertising and Exhibits of the Association will consider audio analgesia devices eligible for advertising and exhibition, provided (1) the devices are certified by a designated testing laboratory to meet the physical standards adopted by the Council on Dental Therapeutics; (2) the devices are accompanied by directions for use which conform to the safety standards, and (3) the promotional claims for the devices are limited to those related to psychophysiological factors, such as diversion. Persons wishing to have their audio analgesic appliances listed as eligible for promotion in Association media should address their requests to the Director of Advertising and Exhibits at the Central Office of the Association.

The one hundred and second annual session of the American Dental Association

It has been thirty-five years since the American Dental Association last met in Philadelphia—more than a third of a century since the nation's dentists were guests of William Penn's City of Love. In 1926 the annual session of the Association, held in conjunction with the Seventh International Dental Congress, drew an attendance of more than fourteen thousand, including representatives from forty-two nations. Next month, on the sixteenth to the nineteenth inclusive, the one hundred and second annual session of the Association, without benefit of international delegations, promises to better that attendance figure. Members who have delayed in forwarding their housing applications are urged to delay no longer as first-class accommodations are becoming scarcer by the hour.

Everything possible has been done to make this year's session one of the most outstanding in the history of the profession. The preliminary program, published in the August issue of THE JOURNAL, attests to the vast amount of planning and teamwork performed by the Council on Scientific Session and the Committee on Local Arrangements. The twelve scientific sections of the Association will present a total of seventy lectures, some as individual essays, some as panel discussions. Two closed-circuit television programs will be featured: one on periodontal prosthesis and one on the treatment of cleft palate. Other features will include 22 clinical lectures, 150 table clinics, 24 student clinics, an audiovisual presentation of 17 technical motion pictures and an outstanding collection of scientific exhibits. More than 200 commercial exhibits of the latest and most acceptable of dental materials and equipment will, as at every dental meeting, attract their full share of attention.

In addition to the scientific program, which will be held in Philadelphia's new and commodious Convention Hall, and the legislative deliberations of the House of Delegates, held in the new Sheraton Hotel, some 40 affiliated or associated groups will meet—for the most part—during the week prior to the Association's annual session, promising Philadelphia two full weeks of dental visitors.

It is not to be supposed that these dental visitors and their families will confine their visits to the Convention Hall and the hall of the House of Delegates. Most will take advantage of the historical atmosphere which Philadelphia and its environs have to offer.

America's recently awakened interest in American history—heightened no doubt by the present cold war—makes Philadelphia—now more than ever—a fitting setting for this year's annual session. Members of the profession who attend will find much that is new in American dentistry, while the members of their families will find much that is old in American history: Independence Hall, Congress Hall, Carpenters' Hall, the Betsy Ross house, William Penn's house, Valley Forge, Christ Church, Washington Square, Rittenhouse Square and Elfreth's Alley.

Considering all that will be offered, by the scientific session itself and by the city in which it will be held, few dentists—in fact few dental families—will wish to miss this meeting.

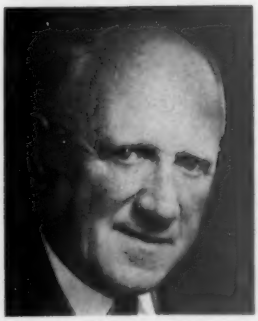
Charles M. Silk is president of the California Dental Association. A general practitioner in San Francisco, Dr. Silk received his D.D.S. from the College of Physicians and Surgeons in 1918. He is a past president of the Alumni Association of his college, a past president of the San Francisco Dental Society, and has been a member of the board of directors of the California Dental Association since 1946. Dr. Silk is a Fellow of the American College of Dentists, a member of Psi Omega and of Omicron Kappa Upsilon, and holds membership in the Commonwealth Club of California, the Olympic Club, and the San Francisco Civic League of Improvement Clubs. He is the author of several articles on the postpayment plan of the California Dental Association, having played a major role in the development and administration of that plan. From 1920 to 1946 he served as assistant clinical professor of operative dentistry at his alma mater. He is married and the father of one son, Charles M., 35. Dr. Silk is interested in all outdoor sports.

J. M. Hohn, a general practitioner in Yankton, is president of the South Dakota Dental Association. Born in Davison County, S.D., in 1904, Dr. Hohn received his D.D.S. from Creighton University Dental School in 1929 and began the practice of dentistry in Yankton. He is a member of the Knights of Columbus and the Elks Club. Married, Dr. Hohn is the father of three: Mary Ileen, 23, John J., 21, and James C., 19. Dr. Hohn's hobbies are hunting, fishing and golf.

George A. Myers, a general practitioner in Logansport, is president of the Indiana State Dental Association. He received a D.D.S. degree in 1933 from the Indiana University School of Dentistry. Dr. Myers is a Fellow of both the International College of Dentists and the Academy-International of Medicine and Dentistry, and a member of the Pierre Fauchard Academy. He has held all offices in the Cass County and the Wabash Valley dental societies. He has served his state association as trustee for nine years and as director of clinics for three years. He holds membership in the Presbyterian Church, Rotary, Elks, Masons, Scottish Rite and the Shrine. Dr. Myers is married and the father of two—Marilyn Sue, 22, and Charles J., 17. His hobbies include golf and other sports.

1961

C. M. Silk



J. M. Hohn

G. A. Myers

J. Claude Earnest, a general practitioner in Monroe, is president of the Louisiana Dental Association. Dr. Earnest received his D.D.S. from Tulane University in 1927. He has held all offices in the Fifth District Dental Society. He served as a member of the board of directors of his state society for nine years, and for ten years has been a delegate of the Louisiana Dental Association to the House of Delegates of the American Dental Association. Dr. Earnest was a member of the Louisiana State Board of Dental Examiners from 1939 to 1942. He was chairman of the American Dental Association's Council on Legislation from 1956 to 1958. He served five years in the Army in World War II, and is a colonel in the active reserve. Dr. Earnest is a member of Omicron Kappa Upsilon and the Fédération Dentaire Internationale, and a Fellow of the American College of Dentists. He is chairman of the board of St. Paul's Methodist Church. Dr. Earnest is married. His hobbies are gardening and raising Shetland ponies.

Frederick C. Hardy is president of the Utah State Dental Association. A general practitioner in Salt Lake City, Dr. Hardy received his D.D.S. from Northwestern University in 1944. He served as treasurer of his state association from 1957 to 1959, and as vice-president in 1960. He is a member of the Pierre Fauchard Academy and of Omicron Kappa Upsilon. Dr. Hardy served with the U.S. Navy from 1945 to 1947, and is a member of the U.S. Naval Reserve. He is interested in Arabian horses and is a past president of the Utah Arabian Horse Club. From 1944 to 1945 he was an instructor at Northwestern University Dental School. He is married and the father of three children: Thomas, 8, Richard, 6, and Sylvia, 1.

Richard L. Simpson, professor of crown and bridge prosthodontics at the School of Dentistry, Medical College of Virginia, Richmond, is president of the Virginia State Dental Association. Since his graduation in 1935, Dr. Simpson has taught at his alma mater. He served as president of the Richmond Dental Society in 1950, and as chairman of the executive committee of his state association from 1958 to 1960. Professor Simpson is a member of the American Academy of Crown and Bridge Prosthodontics and of Omicron Kappa Upsilon, and a Fellow of the American College of Dentists. He is married. His chief hobbies are fishing and boating.

State Dental Association Presidents

J. C. Earnest

F. C. Hardy

R. L. Simpson

news of dentistry

Eight American dentists tour institutions in five Russian cities, June 3-25

Eight representatives of American dentistry made a five-city Russian tour of medical, scientific and cultural institutions, June 3-25. The delegation consisted of Harold Hillenbrand, secretary, American Dental association; Charles H. Patton, Association president; John R. Abel, Association president-elect; Gerald D. Timmons, speaker of the House of Delegates; John W. Knutson, chief dental officer, U.S. Public Health Service; Thomas J. Hill, former chairman, Council on Dental Research; Arthur F. Schopper, former trustee of the Sixth District, and Francis A. Arnold, Jr., director, National Institute of Dental Research. They visited the cities of Moscow, Leningrad, Kiev, Tbilisi and Sochi on a mission similar to one completed in the United States by a Russian dental delegation, April 26-May 23.

A preliminary report submitted by one member of the mission as a basis for the final mission report included the following observations on the state of dental science in Russia.

There are 16,000 stomatologists and 29,000 dentists in Russia, or one practitioner for 4,733 people. The difference between a stomatologist and a dentist is in their education. A dentist has three years of training beyond secondary education and is trained to place restorations, do extractions and other operative work. The dentist can do gingivectomies and emergency work on fractures but no further surgery.

A stomatologist trains for five years and the first two and a half years consist of the same basic training a medical student receives. During the last two and a half years, 40 per cent of the time is devoted to technical training.

Tuition and books are free and the students receive a small allowance. On graduation, students take a state examination and are assigned to a clinic to practice. It is possible to have a private practice but there is little advantage because of tax problems and loss of social security benefits.

The salaries of the two types of dental practitioners differ. The stomatologist earns 72.50 rubles a month (a ruble is equivalent to $1.10) with an automatic increase to 80 rubles after five years. The dentist earns 55 rubles a month until his automatic five-year increase to 60. After 10 years the stomatologist may possibly earn 108 rubles a month and the dentist 75.

Both types of practitioners work five and a half days (33 hours) a week normally and have paid vacations of 24 working days. They have work norms of 14 visits a day for adults and 10 for

children. They cannot increase their income by exceeding the norm. Men are eligible for retirement at 60 years and women at 55. About 77 per cent of the dentists and stomatologists are women.

Russia has 26 stomatological institutes and 53 dental schools, which graduate 3,600 and 2,500 practitioners, respectively, each year.

Facilities and equipment for research are limited. The number of well-qualified investigators is few and the opportunities are meager. The emphasis is on service rather than on learning the causes of oral disease and methods of their prevention.

The operative dentistry that the delegation saw was not consistent with standards in the United States. Cavities were usually prepared with a bur and there was a lack of hand-cutting instruments. Practitioners usually had no more than seven or eight instruments on their trays. Cement fillings were used almost exclusively. Matrices were not used; cement was packed in the cavity and some contouring was accomplished with a large spoon-shaped plastic instrument and a narrow spatula.

Roentgenograms were used sparingly. Full-mouth roentgenograms were never made for examination, but single films were made on special order.

The equipment seen was generally

Eight representatives of American dentistry toured five Russian cities, June 3-25, visiting medical, scientific and cultural institutions. The pictures above show the dental mission in Tbilisi, U.S.S.R. Upper left: (From left) Arthur F. Schopper, former trustee of the Sixth District; Gerald D. Timmons, speaker of the House of Delegates, and Harold Hillenbrand, secretary of the American Dental Association, examine a patient in a polyclinic. Upper right: (From left) Harold Hillenbrand, Gerald D. Timmons, and John R. Abel, Association president-elect, during a briefing session at the Ministry of Health. Center: Mission members and dental officials of the Georgian Republic.

good and quite modern. It was mostly of Czech manufacture with some good Russian equipment of recent manufacture. In two clinics, there were high-speed engines but they were not observed in use. Most of the equipment included saliva ejectors which never seemed to be in use.

The standards of practice in Russia are below those of the United States. Russian practitioners appear not to apply American concepts of proper cavity preparation. Endodontic procedures would not be accepted as good practice in America. There was no evidence of culturing of canals and major dependence was placed on the use of antibiotics.

Pedodontics was emphasized. Many clinics were devoted entirely to dentistry for children. The polyclinic for children in Leningrad had eight stomatologists and 12 dentists with one full-time orthodontist. Three dentists spent their time examining school children and referring them to the clinic. Similar clinics for children exist in all the cities.

The mission will submit its report in the next few months.

Association Affairs

PLANES GROUNDED OCTOBER 14, PRECEDING ANNUAL SESSION

All commercial and nonmilitary plane flights will be grounded from noon to midnight, Eastern standard time, October 14. As the Association's annual session convenes October 16 in Philadelphia, dentists are urged to make allowances in their travel plans for this development.

The grounding is the result of a national defense exercise, Sky Shield II. More than 6,000 air sorties will be flown over 14,000,000 square miles of air space during the maneuvers. It is estimated that the exercise will ground about 1,850 airline flights in the United States, 273 in Canada, and 31 flights of other nations operating in and out of North America.

JOHN CEDRINS, ASSISTANT DIRECTOR, LIBRARY SERVICE

John Cedrins, Ph.D., has been appointed assistant director of the Bureau of Library and Indexing Service. Dr. Cedrins first joined the Association staff in 1956 when he was appointed assistant librarian.

He was formerly on the staff of the libraries of the University of Chicago, where he completed study for a master's degree in library science. He holds a Ph.D. degree in philosophy from the University of Bonn in Germany and has taught junior college at Flensburg, Denmark.

ASSOCIATION'S WASHINGTON OFFICE CHANGES LOCATION

The Washington office of the American Dental Association has moved to new facilities in Suite 202, 808 Seventeenth St., N.W., Washington 6, D.C. The office's new phone numbers are 393-5940 and 393-5941. The office was previously located at 806 Connecticut Ave., N.W.

DENTAL TECHNICIAN PROGRAM SET FOR PHILADELPHIA

A special one-day program for dental laboratory technicians will be presented October 14 in Philadelphia as part of the annual session of the American Dental Association. The program, sponsored by the Association's Council on Dental Trade and Laboratory Relations, will be held at Temple University and will include table clinics presented over closed-circuit television.

Participants will include J. Eugene Ziegler, chairman of the Council, who will serve as moderator; S. Charles Brecker, New York City; Harold R. Ortman, Buffalo, N.Y.; Robert Cox, Ph.D., vice-dean, Wharton School of Business; Morris Feder, C.D.T., Philadelphia, and George Klein, C.D.T., Philadelphia.

Topics will include porcelain fused to metals, immediate dentures, laboratory economics, telescopic principle in fixed

prosthesis, and retentive devices in removable partial prosthodontics.

Admission will be limited to certified dental laboratory technicians, technicians employed by licensed dentists, owners who are members of the National Association of Dental Laboratories and their employees.

HAROLD HILLENBRAND HONORED BY SWISS DENTAL SOCIETY

Harold Hillenbrand, secretary of the American Dental Association, was nominated an honorary member of the Société Suisse D'Odonto-Stomatologie, at the group's seventy-fifth anniversary jubilee, June 1-4 in Basle. The honor was conferred "in recognition of your outstanding leadership in the field of dental education and professional organization on a national as well as international level . . . and as a token of our appreciation for your valuable services rendered to our Swiss colleagues."

The society has only 16 honorary members, four of whom are representatives of countries other than Switzerland.

STATE OFFICERS TO DISCUSS LEGISLATION, EDUCATION

Legislation and education will be the topics of panel discussions at the State Officers Annual Conference, October 15, in Philadelphia. The meeting, being held in conjunction with the American Dental Association's annual session, is scheduled for 9:30 A.M. at the Sheraton Hotel. All state officers are cordially invited to attend. There will be ample time for discussion from the floor following the presentations of the panels.

Members of the first panel, "Legislative implications of the eighty-seventh Congress" will be Mr. Hal M. Christensen, Association Washington counsel; William P. Schoen, dean, Loyola University (Chicago) School of Dentistry; Charles L. Howell, assistant dean, Indiana University School of Dentistry and formerly dental director of the state of Indiana, and Francis A. Arnold, Jr., director, National Institute of Dental Research. Moderator will be Matthew Besdine, chairman of the Association's Council on Legislation.

The second panel topic, "A comprehensive program of dental health education," will be discussed by Mr. Perry J. Sandell, Association director, Bureau of Dental Health Education, and Mr. Daryl I. Miller, Association director, Bureau of Audiovisual Service. Moderator will be Howard F. Lyboldt, vice-chairman of the Association's Council on Dental Health.

REP. WALTER JUDD TO ADDRESS SESSION'S OPENING MEETING

Rep. Walter H. Judd (R.-Minn.) will address the opening meeting of the American Dental Association's annual session in Philadelphia, October 16. Representative Judd was a former medical missionary in China and delivered the keynote address at the opening of the Republican National Convention last year.

All members and their guests are encouraged to attend the opening meeting which is scheduled for 9:30 A.M. in the Grand Ballroom of the Sheraton Hotel. The U.S. Army Chorus will also entertain.

1962 APPOINTMENT BOOKS AVAILABLE FROM ASSOCIATION

The official American Dental Association appointment book for 1962 is now available. It includes the following helpful features: 8 A.M. to 9 P.M. scheduling with spaces indicated for quarter, half and one hour appointments ; week-at a time layout showing entire week's schedule at a glance, and patient recall system in back of book. The price is $3. The book may be ordered from the Order Department of the Association, 222 E. Superior St., Chicago 11.

ORDER ANNUAL SESSION SOCIAL EVENTS TICKETS NOW

Tickets for the various social events to be held during the Association's annual session in Philadelphia may be ordered from the General Committee on Local Arrangements. Letters and order blanks have been sent to all those who have registered for housing during the session.

The social events which have been scheduled include: President's Banquet, October 18, tickets—$15; Ladies' Luncheon and fashion show, October 17, tickets—$6; tour of historic Philadelphia, October 16, tickets $2; home tour of colonial Philadelphia homes, October 18, tickets—$3; and Philadelphia Orchestra concert, October 17, tickets—$.95.

Tickets for these events may be ordered from Mr. Max Kohn, Executive Secretary, Philadelphia County Dental Society, The Sheraton Hotel, Philadelphia.

A. DAHLBERG, REPRESENTATIVE ON SCIENCE GROUP COUNCIL

Albert A. Dahlberg, department of anthropology, University of Chicago, has been appointed the second representative of the American Dental Association on the Council of the American Association for the Advancement of Science. Sholom Pearlman, secretary of the Council on Dental Research, is the Association's other representative.

ASSOCIATION GIFT AIDS CUBAN REFUGEES IN MIAMI

The American Dental Association's gift of $500 to the American Red Cross for the aid of Cuban refugee dentists was added to other gifts totaling $2,000 and used to establish a dental clinic. The clinic, which is at the Centro Hispano Catolico for Cuban refugees in Miami, is staffed by Cuban dentists who work under the auspices of the U.S. Public Health Department.

Father Bryan O. Walsh of the Centro has reported that the clinic is one of the most constructive and positive uses of such a gift. Several Cuban dentists have been given employment and, in the first ten days, 3,000 persons received treatment.

ASSOCIATION NEEDS NAMES OF FOREIGN CONGRESS ATTENDEES

Persons planning to attend the Mexican Dental Congress, November 19-23, 1961, and the International Dental Congress, July 7-14, 1962, in Cologne, Germany, are asked to send their names to the Office of the Secretary, American Dental Association, 222 E. Superior St., Chicago 11.

W. E. BROWN REPLACES JONES, REFERENCE COMMITTEE HEAD

William E. Brown, Jr., School of Dentistry, University of Michigan, has been appointed by President Charles H. Patton as chairman of the Reference Committee on Dental Education to replace J. Lorenz Jones, who has resigned. C. W. Gilman, 219 E. Eighth St., National City, Calif., has been appointed a member of the committee to fill the vacancy created by the resignation of Dr. Jones.

NINE DENTAL FILMS ADDED TO ASSOCIATION LIBRARY

Nine new films have been added to the film library of the American Dental Association. Two dental health films in color and sound are the *Dental assistant—a career of service,* and *Dental Health.* Seven new technical films, in color and sound except where noted otherwise, are: *The comfort of the patients* (anesthesia), *Class V gold foil restoration, A case for understanding* (relation of the physician to the hospital), *Hospital orientation for general dentistry, Dental health and oral hygiene, Selection and adaptation of facings for anterior fixed bridgework,* and *Television dental clinics* (a kinescope re-

cording of the closed circuit television program originating from the University of Pennsylvania School of Dentistry in April 1961), black and white.

These and other films are available from the Association's Central Office. For further information, write the Bureau of Audiovisual Services, 222 E. Superior St., Chicago 11.

HENRY FONDA TO STAR IN DENTAL HEALTH TV SPECIAL

The American Dental Association in cooperation with local dental societies will present Henry Fonda in a one-hour national television spectacular, February 6, 1962. The show will be telecast over the CBS-TV network, at 8:30-9:30 p.m. (E.S.T.), in support of National Children's Dental Health Week.

The show will consist of a series of sketches based on family life and tied together by Mr. Fonda who will act as head of the family and moderator. The objective of the program is to provide a vehicle for mass education in oral health.

The telecast is being sponsored by Procter and Gamble, makers of Crest toothpaste, but the six minutes normally allotted to commercials will be relinquished to the Association for stressing the importance of maintaining oral health.

Dental Societies

GOV. ROCKEFELLER TO SPEAK AT NEW YORK DENTAL MEETING

Nelson A. Rockefeller, governor of New York, will address the December 4 evening general session of the thirty-seventh annual Greater New York Dental Meeting. The meeting will be held December 4-8 at Hotel Statler Hilton in New York City. It is sponsored by the First and Second District Dental Societies of the State of New York and will explore new areas of dental practice.

NEW HAMPSHIRE SOCIETY PRAISES IRISH FLUORIDATION

The New Hampshire Dental Society passed the following resolution at its 1961 annual meeting: "Resolved: this 20th day of June 1961, at Whitefield, N.H., U.S.A., the New Hampshire Dental Society, at its 84th Annual Meeting, commends the government of the Irish Free State for its action in making it mandatory that the water supplies of the Irish Free State be fluoridated to help improve the oral health of its people."

Copies of the resolution have been sent to President DeValera and Prime Minister Sean Lemass of the Irish Free State.

COLORADO DIAMOND JUBILEE TO BE HELD OCTOBER 1-4

The Colorado State Dental Association will hold a diamond jubilee celebration at its seventy-fifth annual meeting, October 1-4, at the Broadmoor in Colorado Springs.

Clinicians will be Arthur E. Aull, Huntington Park, Calif., and A. H. Bassman, Milwaukee. There also will be table clinics and commercial exhibits.

TEXAS SOCIETY OPPOSES HEALTH CARE FOR AGED BILL

Emmett R. Johnson, president of the Texas Dental Association, presented to the House Ways and Means Committee, August 2, a statement on behalf of his association opposing the health care for the aged bill.

The statement read in part: "The Texas Dental Association vigorously opposes HR 4222 [and] is opposed in principle to the provision of health care benefits by the Federal government to any segment of the general population without regard to need. . . . We believe that HR 4222 is in reality a program of socialized medicine for the aged and Texas dentistry opposes . . . any steps to socialize any part of the health professions.

We believe in the American tradition of free enterprise and . . . that private philanthropy will in the future, as it has so fully done in the past, care for our own needy without government intervention. It is my sincere wish that Congress will . . . encourage the people to solve their own problems through individual effort. We trust that Congress will think of reducing the burden of taxation rather than [continually increasing] this burden."

Legislation

SENATE PASSES RECORD DENTAL FUNDS APPROPRIATION

The Senate on August 2 passed a record-breaking $22,500,000 in federal dental funds for the fiscal year 1962. This is an increase of $7,000,000 over the fiscal 1961 appropriations. Of the total recommendation, $20,000,000 would go to the National Institute of Dental Research and the remainder to the Division of Dental Public Health and Resources.

Consultation with the House is now necessary as the bill passed by the House allocated $5,600,000 less than the Senate recommendation.

HOUSE COMMITTEE HEARINGS ON AGED HEALTH CARE CLOSE

Hearings before the House Ways and Means Committee on the Kennedy Administration's proposal to put health aid-to-aged under the Social Security system closed August 8. Matthew Besdine, chairman of the Association's Council on Legislation, testified before the committee on August 3.

In his testimony, Dr. Besdine emphasized the Association's opposition to provision of health care benefits by the federal government to any segment of the general population without regard to need. He also pointed out the Association's conviction that such proposals will inevitably lead to federal financing and control of all health care services for the majority of citizens.

SENATE COMMITTEE HOLDS HEARINGS ON KEOGH BILL

The Senate Finance Committee held hearings, July 25-26, on the Keogh bill, which would permit the self-employed to defer taxes on self-contributory retirement funds until the funds are actually in use.

The American Dental Association was represented in oral testimony before the committee by the American Thrift Assembly, of which it is an active member. In addition, the Association filed a statement of support by Alfred E. Smith, a member of the Association's Council on Legislation and a board member of the American Thrift Assembly.

National Defense

DENTISTS NAMED TO NATIONAL MEDICAL ADVISORY COMMITTEE

President John F. Kennedy has named three dentists to the National Advisory Committee on Selection of Physicians, Dentists and Allied Specialists. They are: Harry M. Wheeler, Washington, D.C.; Daniel A. Collins, San Francisco, and Gustav C. Tassman, Philadelphia. The committee advises Selective Service and local draft boards in choosing doctors for military service.

Other new members of the committee are: Hugh J. Morgan, M.D., Vanderbilt University; James W. Colbert, Jr., M.D., St. Louis University School of Medicine; Richard F. Jones, M.D., Washington, D.C.; DeWitt T. Burton, M.D., Detroit; Stanio Bistress, M.D., New York City; Roy J. Heffernan, M.D., Tufts University; Ward Wylie, M.D., Mullens, W. Va., and Theodore K. Lawless, M.D., Chicago.

President Kennedy had previously ac-

cepted resignations of all members of the Eisenhower-holdover committee, including George Fister, M.D., president-elect of the American Medical Association.

CANBY, DENTAL DIRECTOR AT BROOKE ARMY MEDICAL CENTER

Brig. Gen. Clarence P. Canby has been named director of dental activities at Brooke Army Medical Center, succeeding Brig. Gen. Henry R. Sydenham, retired. General Canby was formerly director of dental activities at Walter Reed Army Medical Center and chief of the dental service at Letterman General Hospital.

HEALTH, SCIENCE STUDENTS ON TEMPORARY ACTIVE DUTY

One hundred and sixty-seven medical, dental, engineering, science, nursing and veterinary students are now on temporary active duty with the U.S. Public Health Service as members of the service's commissioned reserve.

The students constitute the latest group to receive special training under the service's commissioned officer student training and extern program (COSTEP). Assignments under COSTEP are open each year to students who complete either their second or third year of professional education on or before July 1 and are interested in eventual careers in the service's commissioned corps.

The students selected are commissioned in grades equivalent to second lieutenant in the Army and their active duty does not exceed 120 days. Opportunities for medical or dental internships or active duty on graduation also are available to qualified students. Although the program is year-round, most students serve during the summer months.

The purposes of the program are to stimulate interest in public health service careers, to enable students to further their professional knowledge while gainfully employed, to increase their understanding of and interest in public health agencies, and to provide the service with needed personnel during the vacation months.

The students this year are assisting with roentgenological health surveys, mental hygiene work, communicable disease eradication, water pollution control, dental research and other public health activities.

BERRY NAMED HEALTH, MEDICAL AIDE TO DEFENSE DEPARTMENT

Frank B. Berry has been appointed deputy assistant secretary of defense (health and medical) in the office of the assistant secretary of defense (manpower). His appointment became effective August 1 with the resignation of E. H. Cushing. Dr. Berry, former assistant secretary of defense (health and medical), has been serving since the dissolution of his office in January as senior medical adviser to Mr. Carlisle P. Runge, the assistant secretary for manpower.

SUMNICHT TO HEAD ARMY'S PREVENTIVE DENTISTRY GROUP

Lt. Col. Russell W. Sumnicht (DC) has been appointed head of the Army's new preventive dentistry branch, which is aimed at reducing the incidence of dental disease within the Army through the application of public health concepts.

Colonel Sumnicht was previously a consultant to the chief of the Army Dental Corps, while serving on the staff of the Medical Field Service School, Brooke Army Medical Center, Fort Sam Houston, Tex. He received a D.D.S. degree from the University of Southern California and also holds a Master of Public Health degree from the Johns Hopkins University School of Hygiene and Public Health.

ORAL ALLERGY INSTITUTE AT TUSKEGEE V.A. HOSPITAL

A Medico-Dental Institute on Oral Allergy will be held Sept. 22 at the Veter-

ans' Administration Hospital, Tuskegee, Ala. Participants will include E. H. Dibble, M.D., Tuskegee Institute; Charles W. Johnson, M.D., Meharry Medical College; Charles A. McCallum, M.D., D.M.D., University of Alabama; E. W. Rosenberg, M.D., University of Miami, and J. F. Volker, University of Alabama.

Dental Education

DENTISTS GIVE $659,987 TO THEIR DENTAL SCHOOLS

In 1960-1961, 16,912 dental alumni gave $659,987 in support of their dental schools, according to a report of the Fund for Dental Education. The figures were obtained from a survey conducted by the Fund for Dental Education which included reports from 40 schools. The total amount given shows a considerable gain over the first survey in 1958-1959 in which 14,787 alumni gave $390,916 to 33 dental schools.

The report also showed that in 12 institutions of higher education, 3,462 dentists gave $32,187 in support of university projects other than dental.

From the standpoint of individual giving, the average dental alumni gift increased from $26 in 1958-1959 to $39 in 1960-1961.

TUFTS UNIVERSITY SETS UP GINGIVAL DISEASE REGISTRY

The Tufts University School of Dental Medicine, department of periodontology, has established a registry of gingival disease. Practitioners are invited to submit gingival biopsy specimens for diagnosis. Additional pertinent information will be provided by the registry regarding the nature of individual cases, and permanent files will be maintained for follow-up case study. Necessary forms and mailing containers will be sent on request. There is no charge for this service. The address is 136 Harrison Ave., Boston 11.

NUTRITION, ORAL HEALTH CONFERENCE SEPTEMBER 24

A conference on nutrition and oral health will be held September 24 at the Evans Dental Institute, University of Pennsylvania, Philadelphia. The meeting is sponsored by the committee on nutrition and metabolism of the Philadelphia County Medical Society, the International Association for Dental Research and the National Vitamin Foundation.

Participants will include Lester W. Burket, Louis Grossman, Robert S. Goodhart, Albert Schatz, Robert S. Harris, Olaf Mickelsen, Albert Russell, Samuel Dreizen, Irwin Ship, and Seymour H. Rinzler. Further information may be obtained from Michael G. Wohl, M.D., 1727 Pine St., Philadelphia 3.

PENNSYLVANIA ALUMNI DINNER TO HONOR LESTER W. BURKET

Lester W. Burket, dean of the University of Pennsylvania School of Dentistry, will be honored by alumni of the school at a banquet October 14 at the Warwick Hotel, Philadelphia. Dr. Burket is beginning his tenth year as dean and will be cited for his contributions to the profession and to the school of dentistry. I. S. Ravdin, vice-president for medical affairs at the University of Pennsylvania, will be toastmaster at the banquet.

EMORY TO OFFER MASTER OF SCIENCE IN DENTISTRY

The Emory University School of Dentistry will offer a Master of Science in Dentistry degree beginning this fall. The graduate program is designed to provide advanced training for dental graduates in the various clinical and basic science areas of dentistry. It is planned particularly for persons interested in careers in dental education and for dentists who intend to qualify for the various dental specialty boards.

Applicants must be graduates of ac-

credited schools of dentistry and must have superior records, preferably standing in the upper quarter of their graduating classes.

Programs leading to the new M.S.D. degree will be offered in oral pathology, periodontics, orthodontics, pedodontics, crown and bridge prosthesis, prosthetic dentistry and operative dentistry. Charles A. Waldron is director of the program and further information may be obtained from him at 106 Forrest Ave., N.E., Atlanta 3, Ga.

ST. LOUIS ALUMNI TO HOLD REUNION IN PHILADELPHIA

The alumni of the St. Louis University School of Dentistry will hold their annual reunion, October 17, during the American Dental Association session in Philadelphia. The reunion, which will be a reception and cocktail party at the Bellevue Stratford Hotel, will be from 4:00 P.M to 6:00 P.M. Stephen P. Forrest, dean of the School of Dentistry, will be present at the reception.

A second reunion for dental alumni will be held in conjunction with Founder's Week at St. Louis University, October 19-24. A reception will be held for reunion classes of 1936, 1941, 1946, 1951 and 1956, and a clinical program, luncheon, cocktail party and dinner dance also have been scheduled.

PHILIPPINE SCHOOLS RECEIVE DENTAL BOOKS FROM INDIANA

Indiana University School of Dentistry donated 122 dental textbooks and some journals to the dental schools of the University of the Philippines and the University of the East, both in Manila. The gifts were presented to the deans of the schools by Capt. F. K. Etter (DC), commanding officer, U. S. Naval Station, Sangley Point, Philippines, a graduate of Indiana. His father, Mr. R. B. Etter of Indianapolis, had told the librarian of the Indiana University School of Dentistry of the need for books in the Philippines.

JOHN KNUTSON JOINS UCLA DENTAL SCHOOL FACULTY

John W. Knutson, chief dental officer, U.S. Public Health Service, (retired) has been appointed to the faculty of the new University of California at Los Angeles School of Dentistry. Dr. Knutson will be professor of preventive dentistry and will have a joint appointment as professor of public health (dentistry) in the UCLA School of Public Health. He will assume his new position October 1.

Dr. Knutson has served as assistant surgeon general and chief dental officer of the Public Health Service since 1952. Prior to that he was chief of the division of dental public health in the Public Health Service. In 1955 he organized the World Health Organization's dental health program and still serves on an expert advisory panel for dental health for WHO. Dr. Knutson received his D.D.S. degree from the University of Minnesota and has a Ph.D. degree in public health from Johns Hopkins University.

TENNESSEE DENTAL COLLEGE USING MUSIC IN DISPENSARY

Children being treated at the pedodontic clinics of the University of Tennessee College of Dentistry will be soothed by piped-in music and stories programmed especially for their age group. For some time, all patients at the clinics have been soothed with light music piped from a commercial source and it will be continued for adults.

The new program, geared by Dean Shailer Peterson to the youngsters' level will be interrupted for announcements in the form of dental health slogans and dental care warnings. The programs will be recorded on tape by dental hygiene students and dentists in the pedodontic clinics.

LABORATORY EXAMINATION DATES, PLACES SCHEDULED

Certification examinations for dental laboratory technicians have been scheduled for the coming year. Certification requires submitting two applications. The second form must be completed and in the central office of the National Association of Dental Laboratories by the deadline dates indicated in the following schedule:

Place	Examination date	Deadline for second form
Chicago	Oct. 8	Sept. 8
Atlanta, Ga.	Oct. 28	Sept. 16
Spokane, Wash.	Nov. 4	Sept. 23
Columbus, Ohio	Nov. 4	Sept. 23
Los Angeles	Nov. 5	Sept. 24
New York City	Nov. 5	Sept. 24
Chicago	Feb. 17	Jan. 6
Washington, D.C.	March 3	Jan. 20
San Francisco	April 7	Feb. 24
Ohama, Neb.	April 28	March 11
Dallas, Texas	April 29	March 18
Boston	April 29	March 18

HOWELL, ASSISTANT DEAN, INDIANA DENTAL SCHOOL

Charles L. Howell has been named assistant dean of the Indiana University School of Dentistry with the additional title of professor of public health dentistry. Dr. Howell has been director of the dental division of the Indiana State Board of Health since 1953.

He received his D.D.S. degree from Indiana University in 1946 and an M.S. degree in public health from Johns Hopkins University in 1948. He spent five years in public health dentistry, being stationed at Woonsocket, R. I., and Richmond, Ind. During this period he conducted some of the early clinical studies on stannous fluoride as a preventative of dental caries. While associated with the Indiana Board of Health, Dr. Howell also served as a consultant in public health dentistry to the Indiana dental school.

He is president-elect of the American Association of Public Health Dentists, secretary of the Indiana State Dental Association, and is a Fellow of the American College of Dentists and of the American Public Health Association.

DENTAL LABORATORIES' DRIVE FOR EDUCATION FUNDS BEGINS

The National Association of Dental Laboratories' campaign to aid dental education has begun with the appointment of state chairmen. The solicitation of dental laboratories by the state chairmen and their committees will end during National Dental Laboratory Week, September 26-30. A final report on the campaign will be made to the association during its annual convention in Chicago, October 3.

The following men have been selected as state chairmen: Alabama, George G. Vedel, C.D.T.; Arizona, Robert Witmer; Arkansas, Dan Bartell; California-Nevada, Leo A. Sunol, C.D.T.; Southern California, J. Allan Smith, C.D.T.; Colorado, Arthur B. Carper, C.D.T.; Connecticut, Murray Kaizer, C.D.T.; Delaware, Nathan Riff, C.D.T.; Washington, D.C., James N. Beck, C.D.T.; Florida, Edwin C. Carlson, C.D.T.; Georgia, Sam S. Swilling, C.D.T.; Hawaii, H. Ota; Idaho, Clark W. Sheppard, C.D.T.; Illinois, Edward B. Grimes, C.D.T.; Indiana, Ray O. Griffith, C.D.T.; Iowa, Paul L. Jones, C.D.T.; Kansas, J. E. Deurmeyer, C.D.T.; Kentucky, Irvin J. Dooley, C.D.T.; Louisiana, J. F. Auderer, Jr.; Maine, L. R. Eliason, C.D.T.; Maryland, William Wolfson, C.D.T.; Massachusetts, Alan S. Garon, C.D.T.; Michigan, Alec S. Walters, C.D.T.; Minnesota, Richard J. Lindeman, C.D.T.; Missouri, Maxwell L. Schoenfield, C.D.T.; Mississippi, Max T. Casto, C.D.T.; Montana, Loyce Mitchell, C.D.T.; Nebraska, Edward G. Mertz, Jr., C.D.T.; New Hampshire-Vermont, Edmond J. Houle, C.D.T.; New Jersey, Arthur Koorse, C.D.T.; New Mexico, Robert Witmer; New York, Henry Kitt, C.D.T.; North Carolina, F. Tryon Horton, C.D.T.; North Dakota,

Harry J. Schrimpf, C.D.T.; Ohio, G. Paul Stough, C.D.T.; Oklahoma, Floyd Spiva, C.D.T.; Oregon, R. C. Pfaender, C.D.T.; Pennsylvania, Ralph Packman; Rhode Island, Ugo S. Garganese, C.D.T.; South Carolina, Harry P. Goodwin, C.D.T.; South Dakota, James A. Bauer, C.D.T.; Tennessee, Thomas Stratton; Texas, Harold J. Eiserloh, C.D.T.; Utah, Einar Lignell, C.D.T.; Virginia, Lewis Zeno; Washington, W. H. Miller; West Virginia, K. S. Meredith, C.D.T.; Wisconsin, James M. Chmel, C.D.T., and Wyoming, Loren R. Smith, C.D.T.

REFRESHER COURSES OFFERED AT MANY SCHOOLS THIS YEAR

Alabama • The University of Alabama School of Dentistry is offering several refresher courses during the academic year of 1961-1962. These courses are: Dental assisting, October 28-29, Paul E. Hammons, Gertrude M. Sinnett, $25; Complete dentures, November 4-6, John J. Sharry, $100; clinical oral surgery, November 11-13, Robert B. Shira, $100; root canal therapy, November 25-27, Adeeb E. Thomas, $100; oral cancer, December 9-11, Leonard Robinson, $75; hospital protocol and dental therapeutics, January 13-14, Charles A. McCallum, $85; preventive dentistry, January 15-19, Joseph F. Volker, $125; children's dentistry, January 20-22, Sidney B. Finn, $85; statistics in dentistry, January 27-29, Homer Jamison, $100 (full-time faculty members of other dental schools, reduced rate of $35); general anesthesia, February 3-5, James D. Jones, Charles A. McCallum, $100; functional esthetic restorative procedures, February 10-12, Charles L. Pincus, $100; removable orthodontic appliance construction (limited to practicing orthodontists), February 24-26, Samuel D. Gore, $100. Further information may be obtained from the director of the refresher course program at the school, 1919 7th Ave. South, Birmingham 3, Ala.

Baltimore • The Children's Hospital of Baltimore is accepting applications for an internship to begin July 1, 1962. The internship is of the rotating variety and will stress dentistry for the handicapped and the use of general anesthesia in complete dental service. The training will be given with the cooperation of the department of pediatrics of the Johns Hopkins Hospital. Further information may be obtained from Mr. C. Christiansen, administrator of the hospital, 3825 Greenspring Ave., Baltimore 11.

California • The University of California School of Dentistry has several courses scheduled for September and October, which are: Anesthesia and analgesia in the practice of oral surgery, September 22, John S. Lundy, $20; dentogenic symposium, September 23, John P. Frush, $10; recent advances in periodontal therapy, October 6-7, Saul Schluger, $40; introduction of oral medicine, October 28, Sol Silverman, Jr., $20. Further information may be obtained from Ben W. Pavone, coordinator of postgraduate education at the school, San Francisco 22.

Columbia • The School of Dental and Oral Surgery of Columbia University announces the following courses for qualified orthodontists: Twin-wire appliance therapy, December 4-8, Joseph E. Johnson; edgewise appliance therapy, March 5-10, Clifford L. Whitman; applied roentgenographic cephalometry, March 14-16, Henry I. Nahoum; segmented arch technic, April 2-6, Charles J. Burstone. Further information may be obtained from Joseph A. Cuttita, chairman of postgraduate admissions at the school, 630 W. 168 St., New York 32.

First District Dental Society • The First District Dental Society of New York has scheduled several courses for November and December. They are: Use of precision attachments in partial denture construction, November 3, Philip Edelman; principles of operative procedures, November 3, William H. Silverstein; practical orthodontics for the general practitioner, November 8-9, Saul R. Kaye; tested technics for establishing practice growth, November 8-9, Abraham Berliner; cosmetic approach to fixed anterior restoration, November 10-11, David Shelby; fixed bridges and porcelain restorations, November 15-16, Harold Schwartz; a comprehensive survey of the acrylics in dentistry, November 17-18, A. Milton Bell; hospital operating room technic for the general practitioner, November 29, Bernard M. Cohen; an entirely new approach to complete and partial denture construction, November 29-30, Jack M. Buchman, Harold Gelb; analgesia for modern dentistry, November 30-December 2, Harry Langa; bite planes, provisional ligatures and splints, November 30-December 2, Abraham Berliner; oral reconstruction, December 1-2, Herbert H. Kabnick; removable precision bridge technics in reconstruction diagnosis and the approach treatment, December 12-16, I. Franklin Miller. Further information may be obtained from the

postgraduate education program of the society, Statler Hilton Hotel, New York 1.

Indiana • Indiana University School of Dentistry is offering several refresher courses, which are: Clinical oral pathology, September 20, 27, October 4, 11; partial denture design and construction, November 13-17, Ray Steinacher; postgraduate course in pedodontics, November 13-17, Roy Lindahl. Further information may be obtained from the dean of the school, 1121 W. Michigan St., Indianapolis 2.

Kentucky • The University of Kentucky College of Dentistry is offering four postgraduate courses this fall: Oral diagnosis and clinical oral pathology, September 30, Stephen F. Dachi; complete denture prosthetics for the general practitioner, October 2-4, William R. Laney; restorative dentistry, November 2-3, John H. Mosteller; periodontics for the general practitioner, December 4-6, Harry M. Bohannan. Further information may be obtained from Stephen F. Dachi at the college, Lexington, Ky.

Michael Reese Hospital • The dental department of Michael Reese Hospital and Medical Center will present a course on full mouth rehabilitation, September 25-29, which will be augmented by closed-circuit television. Further information may be obtained from the dental department of the hospital, 29 and Ellis Ave., Chicago 16.

Michigan • The W. K. Kellogg Foundation Institute: Graduate and Postgraduate Dentistry, the University of Michigan, will offer the following postgraduate courses this fall: Complete denture prosthesis, September 18-29; occlusal equilibration, October 2-6; light differential forces in orthodontic treatment, October 9-11; hydrocolloid and rubber base inlay technics, October 23-25; partial denture prosthesis, October 23-November 3; higher speeds for rotating instruments, October 26-27; dental treatment for handicapped children, November 13-14; precision attachment bridgework, November 13-17; amalgam restorations, November 27-29; endodontics, November 27-December 8; minor oral surgery, November 27-December 8; silicate restorations, November 30-December 1; practice administration for the orthodontist, December 4-6; guiding occlusal development, December 4-15; periodontics, December 4-15; control of apprehension and pain in dentistry for children, December 11-12. Further information may be obtained from Robert E. Doerr at the Institute, Ann Arbor, Mich.

Mount Sinai Hospital • The department of dental and oral surgery of the Mount Sinai Hospital of New York announces that its proposed two year residency program in association with the School of Dental and Oral Surgery of Columbia University has been cancelled. Mount Sinai, however, will conduct a two year oral surgery residency program.

The hospital is also offering two postgraduate courses: Analgesia and pain control, October 6, 13, 20, 27, Alvin Nathan, William Greenfield, Walter Caruso, Norman Cranin, $60; minor oral surgery for the general practitioner, November 3, 10, 17, 24, December 1, Alvin Nathan, L. Stern, Jr., Marvin Freid, Peter Stern, N. Cranin, $65. Further information may be obtained from A. Norman Cranin, chairman of the education committee of the department of dentistry at the hospital, 100 St. and Fifth Ave., New York 29.

Pennsylvania • The University of Pennsylvania School of Dentistry will present the following courses in the coming year: Endodontics, October 4-December 20, Louis I. Grossman; practical procedures in oral rehabilitation, October 9-13, Ernest R. Granger, William Maxwell and Robert Simpson; dental assisting, starting October 23 and meeting two evenings per week for 55 sessions, Virginia R. Park; dentistry for handicapped children, November 20-22, Manuel M. Album; dermatologic lesions with oral manifestations, November 27-28, Jens J. Pindborg of Copenhagen, Denmark; ultrasonics for the general practitioners, October 28, John H. Stine; oral pathology, January 6, Lionel Gold; the use of ultrasonics in periodontics, December 16, Henry M. Goldman and D. Walter Cohen; periodontal histopathology, January 8-12, Henry M. Goldman, D. Walter Cohen and Frederic M. Chacker. Further information may be obtained from the division of postgraduate courses of the school, 4001 Spruce St., Philadelphia 4.

Temple • Temple University School of Dentistry has announced the following postgraduate courses: clinical endodontics seminar, October 20, Leonard Parris, $35; clinical endodontics, November 6-11, Leonard Parris, $200; and high speed in operative dentistry, December 13, Carlos Weil and Charles A. Nagle, Jr., $35. Further information may be obtained from the school's graduate and postgraduate department, Broad above Allegheny Ave., Philadelphia 40.

Tennessee • The University of Tennessee College of Dentistry will present a postgraduate course in normal function of the natural teeth

of man—emphasizing function of the upper cuspids, September 11-12. Faculty will include Angelo D'Amico, Thomas R. Meadows, and Harold P. Thomas. Tuition is $40. Further information may be obtained from the postgraduate department of the school, 62 Dunlap, Memphis.

Toronto • The Faculty of Dentistry, University of Toronto, is offering a course in occlusion and occlusal correction, October 16-20. Further information may be obtained from the chairman, division of postgraduate studies at the school, Toronto, Ontario, Canada.

Tufts • Tufts University School of Dental Medicine has scheduled several courses for this fall: A demonstration course in complete upper and lower dentures, September 29-October 1, Victor H. Sears, $100; dental care for the handicapped child, October 2-5, M. Michael Cohen, $125; cancer of the oral cavity and salivary glands, October 12 for six Thursdays, Gerald Shklar and Irving Meyer, $125; and new concepts for inlay construction, November 7-8, R. Sheldon Stein, $75. Further information may be obtained from the director of postgraduate courses at the school, 136 Harrison Ave., Boston 11.

Research

BACTERIA-CARIES RESEARCH STARTED AT MIAMI HOSPITAL

A new research program to identify and characterize bacteria related to dental caries has been started by Doran D. Zinner at the National Children's Cardiac Hospital, Miami, Fla. Dr. Zinner is director of dental research at the hospital and assistant professor of microbiology at the University of Miami School of Medicine.

The National Institute of Dental Research has awarded Dr. Zinner and his co-investigators $127,902 for their five year program. His associates are Milton S. Saslaw, M.D., director of medical research at the cardiac hospital, James Jablon, Ph.D., microbiologist, and Charles Haddox, Ph.D., biochemist.

The researchers hope eventually to develop a vaccine or a medication which would prevent dental caries.

PUBLIC HEALTH POSTDOCTORAL FELLOWSHIPS RAISED $500

The U.S. Public Health Service has announced a $500 increase in stipends for postdoctoral fellowships. This raises the annual stipend to $5,000 the first year, $5,500 the second, and $6,000 the third. The fellowship program, administered by the National Institutes of Health, is designed to increase independent research in medically related fields. At the postdoctoral level, fellowships are awarded to provide advanced training in the technics of basic or clinical research. The $500 increase applies to new and continuation postdoctoral research fellowships awarded on or after July 1, 1961.

ESSEX ELECTED PRESIDENT MEDICAL RESEARCH SOCIETY

Hiram E. Essex was elected president of the National Society for Medical Research, June 29. Dr. Essex is emeritus professor of physiology and former chairman of the section on physiology of the Mayo Foundation for Medical Education and Research. He succeeds Lester R. Dragstedt, University of Florida.

Other officers are Ward F. Darley, vice-president; John B. Youmans, vice-president, and W. T. S. Thorp, secretary-treasurer.

CENTER FOR AGING RESEARCH HAS THREE PUBLICATIONS

The Center for Aging Research of the National Institutes of Health now has available three annual publications. They are: *Research highlights in aging, 1960; Activities of the National Institutes of Health in the field of gerontology, January 1961,* and *Research programs in aging,* 1960.

Research highlights in aging presents a review of a selected number of scientific papers on research in aging carried out or supported by the National Institutes of Health. *Activities of the National*

Institutes of Health in the field of gerontology lists all grants for research on aging active as of January 31, 1961. *Research programs in aging* covers in narrative form all intramural and extramural studies supported or conducted by the National Institutes of Health in the field of gerontology.

The three documents are available free on request to the Information Officer, Center for Aging Research, National Institutes of Health, Bethesda 14, Md.

RESEARCHERS LIABLE FOR ACTIONS OF ANIMAL SUPPLIER

A Massachusetts court has held that a scientific institution can be prosecuted for cruelty to animals for an offense committed by a contractor who boards or supplies animals under contract. This means that a researcher may face prosecution unless he makes sure that persons who sell animals to him or handle animals for him are meeting his own good standards for animal care. Additional information on standards to be included in contracts may be obtained from the National Society for Medical Research, 920 S. Michigan Ave., Chicago 5.

NEW TYPE RESEARCH GRANTS FROM PUBLIC HEALTH SERVICE

The U.S. Public Health Service has announced the availability of two new types of research grants in addition to the traditional research project grant. The new types are the research program-project grant and the research center grant.

A grant for a research program-project is an award made to an institution, in the name of one or more principal investigators, for the support of a broadly-based and usually long-term program of research activity. Program-projects are flexible, may require relatively large sums of money, typically involve the organized efforts of large groups, and may, but generally do not, include support for the basic physical resources. They are usually directed toward a range of problems within a broad category with a central research focus rather than toward a specific single-purpose investigation.

The center grant is an award made to an institution solely for the support of basic physical resources and integrated system of resources and services essential to the conduct of a broad program of research. Center grants are generally provided for research resources usable for a wide spectrum of studies.

Application forms and special instructions for these grants may be obtained from the director, Special Programs Review Branch, Division of Research Grants, National Institutes of Health, Bethesda 14, Md.

General

DUTIES OF AUXILIARIES DISCUSSED AT CONFERENCE

A Conference on Criteria for Evaluation of Functions of Auxiliary Personnel was held June 28-30 in Chicago. The conference, which was supported by a grant from the W. K. Kellogg Foundation, was attended by educators, examiners, practitioners, and public health and federal service dentists. Dental assistants and dental hygienists also attended as observers.

Among the conclusions reached by the conference was that experimental studies on possible expansion of the roles of dental hygienists and assistants are essential to enlarging the dental profession's capacity for service. However, the conferees agreed that there were certain operations, decisions and judgments for which the dentist must retain sole responsibility. They said the following duties are now considered professional in nature: Diagnosis, treatment prescription and treatment programing; cutting and severance of hard and soft tissues; prescription of drugs and other medicaments; prosthetic, orthodontic and other procedures requiring the knowledge and skill of the fully qualified dentist, and direction and su-

pervision of those services rendered by auxiliary personnel under jurisdiction of the dentist.

CLIFTON DUMMETT COMMENDED BY TUSKEGEE V.A. HOSPITAL

Clifton O. Dummett, chief, dental service, Veterans' Administration Hospital, Tuskegee, Ala., received the Manager's Commendation during ceremonies at the hospital, July 27. The statement of commendation included the following remarks: "Dr. Clifton O. Dummett . . . is cited and commended for his many outstanding accomplishments in the field of dentistry. His performance and contributions have brought honor and distinction to himself, to the dental service and to Tuskegee V.A. Hospital as well."

Dr. Dummett has been editor of the *Quarterly of the National Dental Association* for a number of years, and has compiled several outstanding clinical and research exhibits.

RADIO, TV STATIONS ENDORSE KANSAS CITY FLUORIDATION

Stations KMBC and KMBC-TV in Kansas City have come out editorially in favor of fluoridation of the city's water supply. On July 18, during the city's fluoridation campaign, the stations broadcast a statement endorsing fluoridation and urging their listeners and viewers to write the City Council in favor of the proposal.

Included in the statement were the comments: "We believe that the advocates of fluoridation have established firmly the scientific soundness of their case. . . . And we hold as ludicrous the argument that it is 'every citizen's right to have as many tooth cavities as he desires'. . . . The management of Channel 9 and of KMBC Radio recommends that you write or wire members of the City Council, urging them to approve water fluoridation."

SKELETON FOUND BY THAMES NOT THAT OF AMY JOHNSON

Bones found by the Thames river in England are not the remains of Amy Johnson, record-breaking aviatrix, who crashed and drowned in 1941 while ferrying a fighter airplane. Experts have established that the bones were those of a middle-aged woman who died between 10 and 30 years ago. Miss Johnson was 37 when she died. Local officials are satisfied that the bones cannot be those of Miss Johnson. American dentists had been asked to help identify her dental work.

PSI OMEGA PLANS DINNER, THEATRE PARTY, OCTOBER 6

Psi Omega fraternity is planning a buffet dinner and theatre party, October 16, during the American Dental Association meeting in Philadelphia. The dinner will be held at the John Bartram Hotel at 6:30 P.M. Following the dinner, guests will attend a pre-New York showing of the musical "Kean," starring Alfred Drake. There are only 250 tickets available on a first come, first serve basis. They may be obtained for $10 each at the Psi Omega central office, 829 Land Title Bldg., Broad and Chestnut Sts., Philadelphia 10.

U.S. SPENDS $1,992,000,000 ON DENTAL CARE IN 1960

The U.S. public spent $1,992,000,000 for professional services of dentists in 1960, according to the annual *Survey of Current Business*, published by the U.S. Department of Commerce. This amounts to an increase of nearly $100,000,000 over expenditures in 1959, which were $1,894,000,000. However, the 1960 figures include the states of Alaska and Hawaii and 1959 figures do not. The figures do not include expenditures by philanthropic or governmental dentistry. The public spent $4,960,000,000 for the professional services of physicians in 1960.

F. B. NOYES, DEAN EMERITUS OF ILLINOIS, DIED JULY 25

Frederick B. Noyes, 89, dean emeritus of the University of Illinois College of Dentistry and life member of the American Dental Association, died July 25. Dr. Noyes had served as dean of the Illinois school from 1926 to 1940. He also was author of *Dental Histology and Embryology,* first published in 1912, which was the first textbook on the subject and which remained a standard text for more than 45 years and through nine editions.

Frederick B. Noyes

Dr. Noyes received an A.B. degree (1893) from Johns Hopkins University, a D.D.S. degree (1895) and an honorary D.Sc. degree (1922) from Northwestern University Dental School, and an honorary LL.D. degree (1938) from Temple University.

From 1895 to 1914, he was a professor of histology at Northwestern's Dental School. In 1914, he joined the faculty at Illinois as a professor of histology and later of orthodontics. He became dean in 1926 and retired in 1940 to practice full-time, specializing in orthodontics. He moved to Lake Worth, Fla., in 1953.

Dr. Noyes received the Callahan Medal from the Ohio State Dental Association in 1922 and the Jarvie Medal from the New York State Dental Society in 1929. He was a charter member of the American College of Dentists.

Surviving Dr. Noyes are his wife, two sons, three grandchildren and two great-grandchildren. One of his sons, Harold J. Noyes, is dean of the Oregon University College of Dentistry.

ROSTER OF CERTIFIED DENTAL TECHNICIANS PUBLISHED

The National Board for Certification has published its official roster of certified dental technicians. In this third roster published, there are 3,367 certified dental technicians listed for the United States. The numbers of technicians according to states are: Alabama, 31; Alaska, 2; Arizona, 7; Arkansas, 10; California, 459; Colorado, 57; Connecticut, 94; Delaware, 10; District of Columbia, 21; Florida, 166; Georgia, 71; Idaho, 5; Illinois, 220; Indiana, 63; Iowa, 68; Kansas, 37; Kentucky, 13; Louisiana, 21; Maine, 9; Maryland, 94; Massachusetts, 163; Michigan, 171; Minnesota, 43; Mississippi, 3; Missouri, 77; Montana, 7; Nebraska, 54; Nevada, 7; New Hampshire, 7; New Jersey, 138; New Mexico, 4; New York, 267; North Carolina, 10; North Dakota, 5; Ohio, 184; Oklahoma, 26; Oregon, 58; Pennsylvania, 169; Rhode Island, 18; South Carolina, 15; South Dakota, 13; Tennessee, 22; Texas, 211; Utah, 29; Virginia, 34; Washington, 111; West Virginia, 19; Wisconsin, 42; Wyoming, 6.

DENTAL ASSISTANT FILM FOR HIGH SCHOOL GIRLS RELEASED

A film, *The dental assistant—a career of service,* has been released as part of a program to interest high school graduates in a career of dental assisting, by the U.S. Public Health Service and the American Dental Assistants Association.

The color film shows career opportunities in this rapidly growing field, highlights the varied duties dental assistants perform, and points out the training facilities now available at schools and colleges. It was produced by the Public Health Service and is intended for use by high school guidance counselors, dental socie-

ties and health departments. The film may be obtained from state health departments and the American Dental Association.

PERIODONTISTS FORM SOCIETY IN UPPER NEW YORK STATE

The Upper New York State Society of Periodontists has recently been incorporated. Temporary officers of the new organization are Frank Fischetti, president, and Robert Wolfsohn, secretary-treasurer.

MELVIN DOLLAR, DIRECTOR, NEW YORK DENTAL SERVICE

Melvin L. Dollar has been appointed executive director of the New York Dental Service Corporation. Mr. Dollar, formerly dental consultant for the Continental Casualty Insurance Company, Chicago, is planning the dental care insurance coverages that the organization will offer to the public within several months.

Mr. Dollar originated the first dental insurance plan in 1949 when he was executive director of Group Health Association, Washington, D.C. He was the first full-time secretary of the former Committee on Economics of the American Dental Association. Mr. Dollar also worked with the recent Commission on the Survey of Dentistry, serving as director of socio-economic studies.

SODIUM FLUORIDE ADDED TO NEW IPANA DENTIFRICE

Bristol-Myers has introduced a new Ipana dentifrice containing sodium fluoride that is being marketed east of the Rocky Mountains. The company was quoted by the *Wall Street Journal*, July 27, as saying, "Sodium fluoride is a tooth enamel hardener that protects against softening action of organic acids."

The new dentifrice has not been submitted to the Association's Council on Dental Therapeutics for recognition, such as was given to Crest tooth paste. According to J. Roy Doty, secretary of the Council, there does not seem to be any evidence yet which would justify claims for the effectiveness of the new dentifrice. However, he added, "The Association is happy to learn that another manufacturer is experimenting with a potential decay-preventive. We hope that Bristol-Myers will back its claims with solid clinical evidence."

WOMAN DENTIST TO OPEN DENTAL CLINIC IN NIGERIA

Mary Jane Watkins, vice-president, Association of Women Dentists of New York, will go to Nigeria in October to set up and operate a dental clinic in a hospital now under construction in that country. The hospital, the Enugu Medical Center in Uwani, Enugu, Eastern Nigeria, is under the sponsorship of the Nigerian-American Hospital Foundation. Dr. Watkins will spend some of her time making a survey of the dental problems and needs of Nigeria, and will report to the American Dental Association on her findings.

CANCER PATIENT CARE TOPIC OF FALL MEETING IN NEW YORK

The physician and the total care of the cancer patient will be the topic of the 1961 scientific session of the American Cancer Society, October 23-24 in New York City.

Sub-topics will be: Counseling the cancer patient, what the cancer patient should be told about his diagnosis and prognosis, care of the advanced cancer patient, society's role in caring for the cancer patient, and decisions in the early care of the cancer patient. Under the last section, one of the speakers will be Edgar L. Frazell who will discuss cancer of the head and neck.

Further information may be obtained from Professional Education Section, American Cancer Society, 521 W. 57th St., New York 19.

international dentistry

News from Great Britain

Dentistry in the Armed Forces • From its inception in 1880 the British Dental Association has taken an active interest in the armed forces, and the favorable position of dental officers today is largely due to many years of constant pressure by the association for a more realistic view of the importance of dental health to all ranks in the Navy, Army, and Air Force. Early in this century, for the purpose of obtaining improvements, a committee of the association was established which later became the Defense Services Committee. This committee now includes active, retired, and reserve members from each of the three services. There is no other comparable committee and it is therefore the only authoritative body outside the service departments in a position to make representations on the wide variety of subjects affecting dental officers of the armed forces, at home and abroad, in peace and in war.

The long struggle has resulted in parity with the medical services and in standards of remuneration which are attractive. The services now offer a satisfactory career. A full range of chairside work can be performed, and facilities are given for attendance at postgraduate courses and for specialist training. A large number of officers have been able in recent years to study for higher qualifications. The fact that opportunity for academic and research activities exists is shown by the recent publication in the *British Dental Journal* of advanced work on isotopes done by a naval officer.

General Dental Council • Sir Wilfred Fish in his presidential address at the opening of the thirteenth session of the General Dental Council last May made the following comments:

"The total number of [dental] practitioners registered at January 1 this year was 16,279, the highest figure yet reached and there was a net gain of 243 over the preceding year despite losses which remained at an exceptionally high level. The number of new registrations during 1960 was 785—the largest number of graduates and licentiates ever registered in one year. The number of Commonwealth dentists among those registered for the first time was also the largest ever recorded, and it is gratifying to observe that the number from our own dental schools, at 587, shows an increase of more than 20 per cent over the average of the previous three years. Deletions made during the year indicate that the rate of retirement is still increasing slowly.

"A further interesting fact which emerges from the current register is that the number of women registered is now 1,446. This is about a thousand more than there were 25 years ago and the ratio of women to men has increased steadily throughout this period. We have been asked by the government of the United States for any information we can provide which will throw light on the working life of women dentists and we have agreed. . . .

"In disciplinary matters, this is the first of our review periods since the Act of 1956 vested in this council a full measure of control over the professional conduct of dental practitioners, subject only to a right of appeal against erasure to Her Majesty in Council, and . . . considerable progress has been made with the tasks of defining and clarifying the position of the practitioner in relation to professional discipline.

"The council have vigorously pursued their policy of investigating every case of unregistered practice reported to them in which the evidence appears to be substantial. During the period 1956 to 1960 inclusive, 61 such cases were investigated; prosecutions were initiated in 29 of these cases and convictions obtained in 25. The number of cases investigated indicates a further decline in the total number of unregistered practice and we have some reason to be satisfied with the effectiveness of our unremitting efforts against these offenders.

"I turn now to the second of our two main

functions, education. In 1956 when this council became responsible for standards of dental education, we adopted the recommendations then in force which had been revised in 1952 and are based on information obtained in part some years before that. The time has therefore come for a further revision and as a preliminary to this task it is necessary to determine what standards are in fact being maintained in the schools today.

"A new provision in the Dentists Act now makes it our duty to conduct a visitation of the schools themselves and a full scale visitation of all the schools in the United Kingdom and the Republic of Ireland is at present being carried out by a panel of visitors under the chairmanship of Professor Roberts."

Sir Wilfred Fish spoke at some length on the methods of entry to the register applicable to overseas dentists who hold Commonwealth or foreign diplomats—especially those which have not been generally recognised. Information about this can be obtained from the Registrar, General Dental Council, 37, Wimpole Street, London. Sir Fish went on to say:

"In addition to our responsibility for the education and discipline of dentists the council were in 1956 given responsibility for ancillary dental workers.

"By the Ancillary Dental Workers Regulations made by the Council, in the form of a statutory instrument which came into force on August 1, 1957, we have established a class of dental hygienists in which trained hygienists may enroll and may work in general practice as well as in the public dental services. The regulations include educational and disciplinary provisions and a notice has been issued for the guidance of enrolled dental hygienists concerning their legal and ethical obligations. Recommendations concerning courses of study for dental hygienists have been made and arrangements for training promoted by the Ministry of Health in a number of dental hospitals have been approved. The council have assumed responsibility for setting up a Central Examining Board for Dental Hygienists whose proposed rules for examining them are before us today. Present numbers are small, but as their numbers increase so too will their contribution to the dental health of the community.

"The other type of ancillary dental worker with which we are concerned places on us a far more onerous responsibility: that of carrying out an experimental scheme for the training and employment of dental auxiliaries. In connection with training we have established a School for Dental Auxiliaries at which 60 women students started on a two-year course in October, 1960. A further 60 girls have been selected and will start training in September this year, bringing the complement of students to a total of 120. . . .

"Our efforts to encourage interest in dentistry as a profession have continued through the award of General Dental Council Scholarships and through the distribution of the booklet *Dentistry—a Career and a Future.*

"In dental health education the period has been one of consolidation rather than expansion.

"With the growing activity of other bodies in the field of dental health education, close liaison and, if possible, co-operation, in the production of material, has become increasingly desirable."

New Dental School • The Council of the Welsh National School of Medicine on May 26, 1961 appointed Brian E. D. Cooke, at present reader in dental medicine at Guy's Hospital Dental School, to be professor of oral medicine and dean of dental studies in the New Dental School and Hospital planned to be built in Cardiff. Mr. Cooke will take up his appointment on August 1, 1962.

Toronto Dental School • On July 1, John A. Pedler, who is at present senior lecturer in the department of oral pathology at the London Hospital Dental School, takes up his new appointment as professor and head of the department of oral diagnosis in the Faculty of Dentistry of the University of Toronto.

Research • The Medical Research Council accepted a proposal for the establishment of a Dental Research Unit in the Dental School of the University of Bristol under the honorary direction of Professor A. I. Darling. The establishment of a unit, which usually consists of from five to ten scientific workers with the necessary technical and scientific assistants, should both encourage and facilitate the development of this research group, and form a valuable addition to the small number of places where those entering dental research can obtain experience and appointments.

G. H. Leatherman,
D.M.D., F.D.S., R.C.S., F.A.C.D.

News from Brazil

Change of Bylaws • The Deliberative Council of the Brazilian Dental Association at its July meeting approved the change of its name to Associação Brasileira de Odontologia (ABO). The state associations will become sections of ABO, and the local societies will be

subsections. Although the state associations will have two years to change their names, one of the most important, Minas Gerais, decided to make the change immediately. Two new state members were accepted to ABO: Mato Grosso, and the Federal District of Brasília. It was decided also that all sections will use the same type of printed paper, stationery and membership cards. The presidents of the state sections automatically will become vice-presidents of the national organization. The subsections now will have one vote each at the election of the Directory. Formerly, the subsections had no right to vote. Dental associations of specialized fields and of specific state employees may become subsections.

Honors • The Deliberative Council granted the title of honorary member to Dr. Vernon Forney of ICA—Point Four, for his outstanding contributions to Brazilian dentistry, particularly in the field of public health dentistry.

Also approved were votes of praise to: Marcelo Augusto Galante, for his prominent services rendered to the national organization; state section of Guanabara, for agreeing to relinquish its name for the benefit of the national organization (see THE JOURNAL, August, 1961); state section of Minas Gerais, for being the first state to adopt the new denomination, and the state section of Pernambuco, for having fought for the rejection of Norberto Schmidt's project of law which would have legalized the practice of dentistry by nonuniversity-trained "practitioners." That law was rejected by the Chamber of Representatives' commission of constitution and justice. The Brazilian Dental Association also gave a vote of gratitude to Georg Frangulis for his services to its journal.

Distinction • The first Brazilian dentist ever to get a Ph.D. degree was Hannelore Loevy Taschini, who received this honor from the University of Illinois in June. Her major subject was anatomy and her thesis was "Normal and abnormal development of the palate of the mouse's fetus—morphological, histological and histochemical factors." Dr. Loevy Taschini graduated from the School of Dentistry, University of São Paulo, in 1952, and obtained a Master of Science degree in 1959 doing graduate work in pedodontics at the University of Illinois College of Dentistry.

Conventions • The following conventions are now on the official calendar of the Brazilian Dental Association: Dental Week of Cariri, Crato, State of Ceará, September 3-9; Eighth Dental Convention of Rio Grande do Norte, September; First Dental Convention of Espírito Santo, Vitória, February 9-13, 1962, and the Third Dental Convention of Minas Gerais, Belo Horizonte, July, 1963.

The official themes of the Eighth Brazilian Dental Convention, to be held in Curitiba, Paraná, July 1962, are: Public health dentistry, high speed, and oral-facial prosthodontics.

Dental Health Day • October 25 was officially declared Day of Dental Health by the Brazilian Dental Association. This date marks the anniversary of the foundation of dental courses in Brazil. April 21 will continue to be dedicated to Tiradentes, patron of Brazilian dentistry. *Hans Freudenthal, C.D.*

News from Argentina

Officers Elected • News officers of the Círculo Odontológico Santafesino are: President, Anibal C. Filibert; secretary, Enrique A. Colandré; public relations, Júan Antonio Pegasano. The organization may be reached at Catamarca 2467, Santa Fé, Argentine Republic.

New Prosthetic Society • The Officers of the Argentina Dental Association have approved as a branch the Sociedad Odontológica de Prótesis. Its officers are: President, Roberto

Obed H. Moen (second from l.), Watertown, Wis., retiring president of the Fédération Dentaire Internationale, installs Jean Deliberos (l), Paris, as the group's new president during its annual meeting in Helsinki, July 9-15. Assisting during the installation are Gerald H. Leatherman (r.), secretary-general, and Hans Freihofer, Switzerland, re-elected Speaker of the General Assembly.

Kohan; secretary, Leon Bronstein; treasurer, Nicolás Parula. The branch address is Junin 959, Buenos Aires, Argentine Republic.

Private Postgraduate Courses • In Argentina, private postgraduate courses just now are beginning. Before, such courses were held at meetings of state organizations and dental societies. Professor Armande L. Vatteone has started one of these courses in orthodontics, which will last for two years.

Socio-economic Congress • The first Socio-economic Congress, organized by the Confederación Odontológica de la Republica Argentina, was held in Buenos Aires in August. The program covered professional association, dental public service and health, dentistry and dental technicians, public powers and dentistry, professional license, professional insurance, and water fluoridation.

Ricardo Augusto Crespi, D.D.S.

International News in General

CENTRAL AMERICA, PANAMA TO HOLD FIFTH DENTAL CONGRESS

The Fifth Odontological Congress of the Federacion Odontológica de Centro America y Panama will be held in Panama, Republic of Panama, January 21-26, 1962. Members of the American Dental Association are invited to attend.

Essayists invited for the scientific program include: Irving Glickman, Boston; Jose Medina, Baltimore; James Bush, Iowa City; Erik Martinez, Mexico City; Robert B. Shira, Washington, D.C.; Kenneth Broesamle, U.S. Navy, San Diego; Joseph Bernier, Washington, D.C., and Louis A. Cohn, New York.

Further information may be obtained from Alfredo H. Berguido, secretario del exterior, Apartado 4115, Panama, Republic de Panama.

DEAN AWARDED MILLER PRIZE; DELIBEROS TO HEAD F.D.I.

H. Trendley Dean, former secretary of the American Dental Association's Council on Dental Research, was named recipient of the Miller Prize, and Jean Deliberos, Paris, was elected president, at the annual session of the Fédération Dentaire Internationale in Helsinki, July 9-15. The presentation of the Miller Prize, highest award given by the world-wide group, will be made at the F.D.I. annual session next year in Cologne, Germany.

Other officers for the coming year are Obed H. Moen, Watertown, Wis., immediate past president; LeRoy M. Ennis, Philadelphia, vice-president; Knut Gard, Norway, vice-president; Erich Muller, West Germany, vice-president; Stewart Ross, United Kingdom, vice-president; Gerald H. Leatherman, United Kingdom, secretary-general; Jack Stork, Netherlands, treasurer; Don Gullett, Canada, member of the council, and Hubert H. Stones, editor. Hans Freihofer, Switzerland, was re-elected Speaker of the General Assembly, and Seymour J. Kreshover, U.S. National Institute of Dental Research, was elected chairman of the Commission on Dental Research.

The international organization also adopted a statement clarifying nomenclature applied to auxiliary personnel, held discussions on dental auxiliaries and dental manpower, and reported progress on a dental lexicon in five languages being prepared under a grant from the U.S. National Institute of Dental Research.

Delegates representing the American Dental Association at the Helsinki meeting were: Secretary Harold Hillenbrand, President Charles H. Patton, President-elect John R. Abel, LeRoy M. Ennis and Obed H. Moen.

SPANISH ORTHODONTIC SOCIETY HOLDS MEETING IN VALENCIA

The Sociedad Española de Ortodoncia (Spanish Society of Orthodontics) held its seventh annual meeting in Valencia in April. The society embraces 130 Spanish dentists who practice orthodontics. Alberto J. Cervera presided. Participating in the scientific program were dentists from Spain, Colombia, the United States, West Germany and Argentina. Charles Nord, president of the Fédération Dentaire Internationale, greeted the opening session.

10,000 JAPANESE CHILDREN IN TOOTHBRUSHING DRILL

More than 10,000 children participated in an outdoor toothbrushing drill June 1, kicking off Dental Health Week in Japan. The drill, sponsored by the Tokyo Municipal Government, the Lion Dentifrice Company and the Mainichi newspaper, took place in Meiji Stadium in Tokyo.

The children followed toothbrushing directions of a man who demonstrated with a large toothbrush and a huge model of human jaws. As they practiced brushing to the sound of a brass band, the children were joined by almost 20,000 of their parents and friends in the stands.

The Toothbrush Drill was held this year for the eighteenth time since 1931 as part of the dental health activities of Japan.

PSYCHOSOMATIC DENTISTRY MEETING IN MILAN, ITALY

An international meeting on the psychosomatic aspects of odontostomatology is being arranged to coincide with the Congress of the Italian Medical Dental Association to be held in Milan, December 8-12, 1961.

This meeting is an outgrowth of a decision, made during the 1957 Fédération Dentaire Internationale Congress in Rome, to organize an international communication center at Milan which would keep research workers informed on this subject.

The Milan symposium will provide the opportunity to exchange views on the following subjects: Psychology and psychosomatics in dentistry (general problems), classification of patients from the psychologic and psychosomatic points of view, phobias associated with dental practice, habits associated with dentistry (bruxism, bruxomania, thumb and finger sucking, abnormal tongue movements), psychodynamic prosthodontics, hypnosis in dental practice, and various topics associated with the mind-body relations manifested by oral symptoms.

Further information may be obtained from Bruno Acht, Piazetta Umberto Giordano 2, Milan, Italy.

COLOGNE, GERMANY TO HOST INTERNATIONAL DENTAL CONGRESS

The XIII International Dental Congress will be held in Cologne, Germany, July 7-14, 1962. A scientific program will be presented consisting of sections on: New findings of fundamental research with regard to the origin of caries, current problems of conservative dentistry, prosthetic treatment in cases of incomplete dentition, dental surgery, and orthodontics. There also will be round-table discussions.

A social program has been prepared that will include several receptions, a concert of organ music in the Cologne cathedral, a banquet and a ball, visits to well-known places of interest and industrial concerns, excursions into the surroundings of Cologne, and a full program for the ladies which will include a fashion show.

An international dental trade show will be held in conjunction with the congress.

All inquiries about the congress and applications to present "free communications," demonstrations and films should be sent to the Secretary General of the Congress, Köln-Lindenthal, Universitätsstrasse 73, Germany.

The Cathedral of Cologne and the Rhine River are shown from Rhinepark in Cologne, Germany. The Cathedral will be the scene of an organ music concert during the International Dental Congress, July 7-14, 1962.

the reader comments

THE JOURNAL *devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. At the request of the author, signatures will be deleted before publication. Printed communications do not necessarily reflect the opinion or official policy of the Association. Your participation in this section is invited.* *The Editor.*

SHORTAGE OF DENTISTS

I read Albert W. Morris' article titled "Meeting the manpower problem" in the December 1960 issue of THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION.

It would seem that if there were a shortage of dentists in a particular state, that state should permit qualified dentists with licenses in other states to obtain a license by presenting their state license and paying the appropriate fee. Since this has not been done by any state, how can we assume that there is a shortage of dentists?

The problem, so far, seems to be one of distribution of dentists rather than a shortage. One of the ways to overcome this is by reciprocity amongst the majority of the states. We should do everything possible to assure a better distribution of dentists rather than build more schools to create more dentists who will practice in areas where there is lesser need for them than in other areas.

The American Dental Association should create two agencies, one to investigate the problem of reciprocity or to create a National Board Examination which will mean something—an examination which, if passed, will permit the dentist to present his certificate and obtain a license to practice in the majority of the states.

The second agency would deal with localities needing a dentist and presenting evidence that they can support one. This information can be made available in THE JOURNAL so that some of the new graduates can locate in areas where they are really needed.

An increase in numbers alone will not solve the problem. Steps should be taken to make the available dental manpower more efficiently distributed.

As for recruiting capable young people for dentistry, we must in all honesty tell them that they must take an examination to practice in each state, that the examination often includes laboratory procedures that the busy dentist doesn't do himself in his practice, that as many as 40 per cent fail in some states yet the same people pass almost similar examinations in other states, and that being an outstanding authority in some phase of dentistry doesn't entitle the dentist to practice across the river in another state. With this information available, it readily can be seen why capable people would rather go into other fields than combat the nonsense presented by archaic dental laws.

I am certain that if the members of the American Dental Association were polled regarding reciprocity, the vote would be overwhelmingly in favor of it. I'm equally certain that if the public were asked to vote, they would also favor reciprocity among the majority of the states.

What are we waiting for?

Anthony E. Bedrick, D.D.S.
1 Nevins St.
Brooklyn 17, N.Y.

PREMEDICATING DRUGS

Being interested in dental therapeutics, I hastened to read the article on dental therapeutics by S. C. Harris in the May, 1961 issue of THE JOURNAL.

I have had considerable experience in the use of premedicating drugs in the dental office and in a hospital dental clinic where all types of children are seen for treatment. Included among these children is a certain percentage of handicapped patients.

The use of premedicating drugs is thought of as routine when management problems are likely. I am very concerned when an author in the dental literature who is not a dentist himself can indict members of the dental profession for not having the skill to establish rapport with patients without the aid of these drugs. To further suggest that these men might take premedicating drugs themselves is surely stepping out of bounds, if the author has not been at the side of a patient who is sitting in the dental operatory with dental treatment about to begin.

I have had experience clinically with a number of ataractic drugs used with all kinds of problem children. I cannot argue with Dr. Harris on the pharmacology and possible side effects of the ataractics. But I do think that all of the potential hazards mentioned in his article do not occur any more often in the use of ataractics than in the use of any other systemic drug for dentistry. Many injections of local anesthetics are given daily in dental offices throughout the country with few untoward results. Is it possible that side effects will show up more often if fewer ataractic drugs are prescribed?

I can point out the beneficial effects of a single dose of certain ataractic agents and I can point out also how barbiturates will act in an unpredictable manner even when the dosage is prescribed according to customary rules for determining dosages. Furthermore therapeutic doses of barbiturates for dental management may leave the patient in a somnolent state for many hours. Short term doses of many ataractics do not cause hypnotic states.

Dr. Harris also seems to contradict himself as the last paragraph of his article implies that premedication is to be reckoned with in dentistry, but barbiturates will work better than ataractics. I too will wait to see the results of studies where barbiturates are compared with ataractics and placebos.

To sum it all up, I think it only right that premedication and drugs to be used as such should be tested in a clinical situation where both subjective and objective criteria are being observed. I want to point out that dentistry needs to establish its own criteria and dosages of drugs as it pertains to a patient in the unique situation of a dental office.

Hugh M. Kopel, D.D.S., M.S.
19933 Livernois Ave.
Detroit 21, Mich.

DR. HARRIS REPLIES

I concede immediately to Dr. Kopel's indictment that I am not a dentist and, therefore, it was in poor taste to suggest that some clinicians might better take tranquilizers than give them to their patients. Though not a clinician, I have had nearly 20 years experience in the design, execution and analyses of clinical studies and human experimentation, particularly in the area of subjective pharmacology.

I tried to specify very carefully the position from which the review was prepared—one of conservatism consistent with the principles and ethics of therapeutics. This is an attitude which precludes the use of any drug without individualizing its selection and determining that there is a favorable ratio between its probable benefit and its possible liability. Perhaps some misunderstanding exists because of the semantics of the term "routine." To this essayist, the word means administration to *all* patients.

Undoubtedly, my ill-chosen phraseology was provoked by the frequent inquiries received about undesired reactions to premedication in dentistry. Either the patients have been very sleepy for hours, or they have become excited and stayed that way. Of the dozen or more such cases discussed, all were children who had been given relatively excessive doses. The protracted depression is so easy to explain, I shall not attempt it here, but the cases of excitation sounded more like the second stage of general anesthesia than any other plausible cause.

Consistently amazing to this writer has been the number of dentists who administer, orally or by injection, to nearly all of their patients a drug like meperidine hydrochloride as a premedicant. In the light of the few very serious reactions which have been provoked by this drug, plus its narcotic classification and not infrequent elicitation of excitement, its use as first choice for premedication seems very casual, to say the least.

Almost certainly, the prevailing practice of premedication before dental local anesthetics explains the widespread use of barbiturates and ataractics in dentistry. Unfortunately this tradition is not supported by the evidence at hand nor by most researchers in the field. As discussed in my review, most reactions to local anesthetics can be prevented, but not by the usual premedication. As a matter of fact, premedication with depressing drugs can intensify the most serious of untoward effects. Accordingly, I am obliged to disagree with Dr. Kopel when he suggests that the use of sedating drugs probably reduces the frequency of local anesthetic reactions. I must disagree also with his implication that any untoward response to therapy might be taken lightly if it is infrequent, especially if the treatment was not necessary.

It was not my intention, in that last paragraph of the section on psychotherapeutic agents, to contradict myself, but to recognize that there are perfectly legitimate circumstances for administering such agents. My preference for barbiturates is based upon their proved reliability and safety, particularly in a single dose situation.

Having long been an exponent of experimental designs which permit definitive rather than speculative conclusions, I'm happy we

agree that such procedures should apply to the evaluation of dental drugs, too. There are disadvantages to running these studies entirely in the clinical office unless double-blind disciplines prevail, and all medications are given to patients with comparable prognoses and diagnoses. For example, unless aspiration and slow injection is practiced assiduously during local anesthetic induction, any estimate of the anesthetics' toxicity is completely befogged by the mechanical unknowns of the procedure.

S. C. Harris
The Dental School
Northwestern University
Chicago

GERMAN—AMERICAN DENTISTRY

George B. Denton's paper on "Some interrelations between German and American dentistry, 1800-1914" (November 1960) represents extensive research and careful thought. Would you kindly send me three reprints?

I was particularly interested in the clear exposition of the position of the American dentists in Germany who were legally only dental technicians and yet had the cream of patients. Naturally this disturbed the German dentists greatly, and rightly so, as they had to take second place.

The American "diploma mills," as the author points out, were thorns in the sides of American dentists in Europe. In this connection, I remember a German writing to my father in New York and asking him if he could send the German a D.D.S. diploma for his son. He wished to place it under the Christmas tree for him!

Naturally, the Germans used the fact that diplomas could be bought to throw suspicion on all American dentists practicing in Germany. This situation came to a head when, in 1907, the German dentists made an effort to refuse admittance of American dentists practicing in Germany to the International Dental Congress to be held in Berlin. After extensive legal consultation with Washington, D.C., the Germans finally dropped the ban and we were able to attend the Congress.

One of my personal experiences was with Dr. N. S. Jenkins of Dresden. He was most interesting, refined and courtly. It was in 1904 or 1905 that I visited him to learn his technic of making porcelain fillings—a method he had devised. High fusing porcelain was being used in the United States but his material was low fusing—so low in fact that the material could be fused in a gas furnace in a gold foil matrix instead of a platinum one. The fillings had an esthetic appearance and could be used in all anterior teeth except for incisal corners.

Dr. Jenkins had an excellent practice. During my visit he introduced me to a member of the Prussian royalty, who, with her entire family, later became my patients on the recommendation of Dr. Jenkins.

A few years after this visit to Dresden, I came to learn of Dr. Jenkins' method of fabricating gold inlays. I do not know who originated this method. It was quite simple. A platinum foil matrix was made of the cavity on a cement model of the tooth, filled with 20 kt. gold solder, trimmed, polished, and set in the tooth with cement. This was the forerunner of the cast gold inlay giving excellent service.

The historians of dentistry will be greatly indebted to Dr. Denton for his detailed and precise picture of dentistry in this era. It is odd that we, with our consummate technical skill, had such a marked effect on developing dentistry in Germany while in medicine it was the reverse; Americans went to Germany and Austria to complete their studies in medicine.

I am asking for three reprints as I wish to send one to a German dental publication to show the benefits our technics had on German dentistry. There is no doubt that we were leaders as the world's best dentists. In science, however, the picture is different. Here we are not leaders and we must make a strenuous effort in this field to keep American dentistry in the lead.

Charles F. Bodecker, Editor
The New York State Dental Journal
268 Ashland Place
Brooklyn 17, N.Y.

deaths

BUREAU OF MEMBERSHIP RECORDS

Harmon, Charles H., Longview, Wash.; died December 27; age 87.

Harrigan, Clarence W., Millinocket, Maine; Tufts College Dental School, 1917; died January 24; age 66.

Harrison, George C., Drury, Kan.; Kansas City-Western Dental College, 1926; died September 20; age 65.

Hart, Charles F., Morgantown, Ind.; Louisville College of Dentistry, 1915; died November 28; age 70.

Hayden, Charles V., Leonardtown, Md.; died February 3; age 84.

Hayman, Spencer H., Huntington, W. Va.; Medical College of Virginia School of Dentistry, 1928; died December 13; age 60.

Healy, Austin B., Newport, R. I.; Tufts College Dental School, 1924; died November 25; age 58.

Hedick, David L., Brooksville, Fla.; Atlanta Dental College, 1908; died September 24; age 77.

Heefner, Henry H., Mercersburg, Pa.; University of Pittsburgh School of Dentistry, 1922; died October 3; age 61.

Hellwege, Conrad F., Philadelphia; University of Pennsylvania School of Dentistry, 1924; died January 6; age 60.

Henderson, Alva C., Canonsburg, Pa.; University of Pittsburgh School of Dentistry, 1953; died January 26; age 45.

Henderson, Fred S., Madison, Ind.; Indiana Dental College, 1924; died January 14; age 65.

Henderson, Horace N., Berkeley, Calif.; University of California College of Dentistry, 1901; died September 12; age 86.

Henderson, Willard P., New Orleans; Marquette University School of Dentistry, 1926; died December 8; age 57.

Henig, Oscar, Jersey City, N. J.; College of Dental and Oral Surgery, 1918; died October 15; age 64.

Herman, Benjamin F., Bridgeport, Conn.; University of Maryland Dental Department, 1911; died October 12; age 77.

Hetu, Theodore G., Beaverton, Ore.; North Pacific College of Oregon School of Dentistry, 1914; died October 7; age 83.

Hicks, Claude E., Tacoma, Wash.; North Pacific College of Oregon School of Dentistry, 1918; died October 19; age 68.

Hill, Sidney E., Mountain View, Calif.; College of Physicians and Surgeons, School of Dentistry, 1924; died December 23; age 64.

Hines, John O., Nashville; died September 25; age 60.

Hinkle, John P., Arcadia, Kan.; Western Dental College, 1918; died November 30; age 72.

Hopkins, Edwin O., Red Hook, N. Y.; died November 10; age 85.

Hopkins, Harry S., Greensburg, Ind.; Ohio College of Dental Surgery, University of Cincinnati, 1896; died November 1; age 86.

Horton, S. Robert, Raleigh, N. C.; University of Maryland Dental Department, 1905; died December 14; age 80.

Howard, Emery B., Rockland, Maine; Temple University School of Dentistry, 1919; died December 31; age 63.

Hudspeth, Gyp, Tampa, Fla.; Vanderbilt University School of Dentistry, 1913; died December 31; age 70.

Hulley, Edwin S., Marion, Ind.; Indiana Dental College, 1903; died December 30; age 80.

Hulme, Albert E., Andover, Mass.; Harvard Dental School, 1892; died December 20; age 93.

Hunt, Hiner M., Owensboro, Ky.; Indiana Dental College, 1900; died January 30; age 83.

Huntington, Roger E., Evanston, Ill.; Northwestern University Dental School, 1911; died December 18; age 72.

Huskey, Dow T., Dothan, Ala.; Atlanta-Southern Dental College, 1938; died October 21; age 50.

Isay, Morton G., Chicago; Northwestern University Dental School, 1922; died November 10; age 60.

Jackson, Charles R., La Jolla, Calif.; Indiana Dental College, 1898; died November 11; age 88.

Jacobs, Dale R., Hubbard, Ohio; Western Reserve University School of Dentistry, 1900; died December 25; age 86.

Jacobson, Julius, Chicago; Northwestern University Dental School, 1919; died January 31; age 62.

Jacobson, Roy C., Lexington, Neb.; University of Nebraska College of Dentistry, 1930; died December 6; age 57.

Johnson, Howard A., Escanaba, Mich.; Chicago College of Dental Surgery, 1920; died November 4; age 67.

Johnson, Kernel M., Elberton, Ga.; Meharry Medical College School of Dentistry, 1920; died December 27; age 66.

Johnson, Robert A., Navasota, Texas; Vanderbilt University School of Dentistry, 1913; died September 13; age 75.

Jones, John M., Etna, Pa.; Pittsburgh Dental College Western University of Pennsylvania, 1905; died January 6; age 77.

Joseph, Joseph N., New Bedford, Mass.; Georgetown University School of Dentistry, 1945; died December 6; age 49.

Josephson, Bernard, Bronx, N. Y.; Georgetown University School of Dentistry, 1947; died February 9; age 36.

Kasen, Herman, Orlando, Fla.; University of Illinois College of Dentistry, 1911; died November 28; age 76.

Kellam, Cecil H., Sandwich, Ill.; Chicago College of Dental Surgery, 1918; died January 30; age 65.

Kellams, Amal D., Bedford, Ind.; Indiana Dental College, 1923; died August 18; age 61.

Kelley, Francis X., Milford, Mass.; Baltimore College of Dental Surgery, University of Maryland, 1921; died November 21; aged 64.

Kelsey, Earle J., Theresa, N. Y.; University of Buffalo School of Dentistry, 1925; died November 18; age 60.

Kern, George V., Wyandanch, N. Y.; New York College of Dentistry, 1913; died October 17; age 68.

Ketcham, Arthur C., Denver, Colo.; University of Denver School of Dentistry, 1923; died December 11; age 64.

Killinger, Carl P., Marion, Va.; Medical College of Virginia School of Dentistry, 1927; died December 31; age 59.

King, Charles H., Bangor, Maine; Harvard Dental School, 1915; died November 23; age 70.

Klingman, Hymen, San Bernardino, Calif.; University of Illinois College of Dentistry, 1932; died February 13; age 52.

Knoll, Albert C., Cincinnati; Ohio College of Dental Surgery, University of Cincinnati, 1913; died October 9; age 68.

Kohen, Michael M., Chicago; Northwestern University Dental School, 1916; died January 27; age 66.

Koppel, Jacob, New York; New York College of Dentistry, 1912; died December 19; age 69.

Krall, George G., New Haven, Conn.; Pennsylvania College of Dental Surgery, 1907; died October 14; age 75.

Krooks, Jacob L., Brooklyn; New York College of Dentistry, 1921; died December 22; age 64.

Krupp, Peter C., Scottsdale, Ariz.; University of Michigan School of Dentistry, 1903; died October 18; age 80.

LaBarre, Joseph L., Tucson, Ariz.; Baltimore College of Dental Surgery, University of Maryland, 1916; died December 25; age 66.

Lackey, Burt L., Xenia, Ohio; Ohio College of Dental Surgery, University of Cincinnati, 1896; died October 16; age 88.

LaFleur, Albert M., Shawnee, Okla.; Tulane University School of Dentistry, 1922; died January 18; age 59.

Land, Adolf H., New York; University of Illinois College of Dentistry, 1939; died December 14; age 61.

Lanzer, Paul E., Bloomer, Wis.; Marquette University School of Dentistry, 1917; died January 29; age 66.

Larkin, Edward F., Ithaca, N. Y.; University of Buffalo School of Dentistry, 1917; died January 2; age 67.

Laswell, James L., Decatur, Ill.; Central College of Dentistry, 1900; died August 3; age 85.

Latham, Garnett, Syracuse, Ind.; Northwestern University Dental School, 1911; died November 15; age 71.

Laufer, Harry M., New Orleans; Loyola University School of Dentistry, New Orleans, 1925; died December 26; age 59.

Lax, Albert, New Haven, Conn.; died December 1; age 78.

Lee, Daniel Y., Reedley, Calif.; Kansas City-Western Dental College, 1924; died October 24; age 60.

Lee, Ell L., Neillsville, Wis.; Washington University School of Dentistry, 1928; died October 5; age 56.

Lee, Kyle T., Roanoke, Va.; Baltimore College of Dental Surgery, University of Maryland, 1916; died December 15; age 72.

Lee, William D., Inglewood, Calif.; University of Southern California School of Dentistry, 1934; died February 1; age 49.

Lehner, Harold B., Alma, Mich.; University of Michigan School of Dentistry, 1903; died December 11; age 79.

Leischow, Arthur F., Milwaukee; Marquette University School of Dentistry, 1915; died September 6; age 69.

Le Page, Jean R., Portland, Conn.; Baltimore College of Dental Surgery, University of Maryland, 1908; died December 11; age 74.

Leppla, Harold M., Edgar, Wis.; Chicago College of Dental Surgery, 1922; died September 29; age 60.

Leroy, Raymond P., Portland, Ore.; North Pacific College of Oregon School of Dentistry, 1929; died December 20; age 65.

LeVier, Frederick R., St. Petersburg Beach, Fla.; Pittsburgh Dental College Western University of Pennsylvania, 1906; died February 18; age 80.

Lief, Jacob O., New York; New York College of Dentistry, 1909; died January 29; age 73.

Loftus, Norris G., Great Falls, Mont.; Northwestern University Dental School, 1954; died December 6; age 38.

Lowe, Rollin C., Evansville, Ind.; Indiana Dental College, 1919; died October 2; age 64.

Lummis, Warren C., Bridgeton, N. J.; University of Pennsylvania School of Dentistry, 1901; died November 19; age 79.

Lundblad, Clarence H., Battle Creek, Mich.; University of Minnesota School of Dentistry, 1916; died December 6; age 67.

Lurcott, Edward L., Mount Vernon, N. Y.; College of Dental and Oral Surgery, 1920; died December 1; age 63.

Luzzi, August F., Fort Worth, Texas; died November 10; age 79.

Maddox, Arthur J., Houston, Texas; Temple University School of Dentistry, 1923; died January 18.

Malakoff, Arthur, Hollywood, Fla.; New York College of Dentistry, 1916; died November 24; age 71.

Marquedant, Pearle I., Rochester, N. Y.; University of Buffalo School of Dentistry, 1916; died January 7; age 72.

Marshall, Albert W., Rogers, Ark.; Chicago College of Dental Surgery, 1901; died December 6; age 85.

Mason, Walter E., Shell Beach, Calif.; University of Nebraska College of Dentistry, 1927; died January 12; age 62.

Mathewson, Joseph E., Santa Ana, Calif.; died November 12; age 64.

Mattson, Marvin D., Toledo, Ore.; University of Oregon Dental School, 1953; died December 30; age 33.

Maumus, Louis F., New Orleans; Loyola University School of Dentistry, New Orleans, 1927; died December 18; age 53.

Maynard, George S., Short Hills, N. J.; University of Pennsylvania School of Dentistry, 1915; died December 13; age 68.

McCall, Oliver P., Houston, Texas; Texas Dental College, 1935; died January 19.

McCann, John R., Massena, N. Y.; University of Buffalo School of Dentistry, 1942; died November 14; age 44.

McCaw, Homer W., Philadelphia; Baltimore College of Dental Surgery, University of Maryland, 1917; died January 20; age 67.

McCormack, Arthur J., Litchfield, Minn.; Northwestern University Dental School, 1901; died September 24; age 82.

McCue, Alonzo G., Bluefield, W. Va.; Baltimore College of Dental Surgery, University of Maryland, 1913; died November 6; age 68.

McCue, Virgil R., St. Joseph, Mo.; Kansas City Dental College, 1903; died December 24; age 78.

McGaughy, Samuel D., San Marcos, Texas; Louisville College of Dentistry, 1900; died December 5; age 83.

McGeorge, John R., Hagerstown, Ind.; Indiana University School of Dentistry, 1928; died January 10; age 56.

McIntosh, Bobbie M., Holly Springs, Miss.; Meharry Medical College School of Dentistry, 1928; died December 31.

McIntyre, Leon A., Huntingdon, Pa.; Temple University School of Dentistry, 1942; died December 13; age 45.

McKean, Harry J., Waukegan, Ill.; Chicago College of Dental Surgery, 1917; died November 3; age 67.

McKennon, Franklin A., Waxahachie, Texas; Vanderbilt University School of Dentistry, 1916; died November 14; age 64.

McKittrick, Henry C., Plainville, Ind.; Indiana Dental College, 1907; died October 13; age 79.

McNelis, Frank J., Altoona, Pa.; University of Pittsburgh School of Dentistry, 1924; died October 28; age 60.

McPhillips, Matthew F., New York; College of Dental and Oral Surgery, 1909; died December 16; age 79.

McSwiney, James F., Chestnut Hill, Mass.; Georgetown University School of Dentistry, 1919; died October 5; age 68.

Mead, Wentworth V., Honolulu, Hawaii; University of California College of Dentistry, 1925; died November 30; age 58.

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announcements

MEETINGS OF THE AMERICAN DENTAL ASSOCIATION

One-Hundred and Second Annual Session	October 16-19, 1961	Philadelphia
One-Hundred and Third Annual Session	October 29-November 1, 1962	Miami Beach, Fla.
One-Hundred and Fourth Annual Session	October 14-17, 1963	Atlantic City, N J.
One-Hundred and Fifth Annual Session	November 9-12, 1964	San Francisco
One-Hundred and Sixth Annual Session	November 8-11, 1965	Las Vegas, Nev.

MEETINGS OF CONSTITUENT SOCIETIES

State	*Date*	*Place*	*Secretary and Address*
Alabama	Apr. 14-18	Birmingham	C. R. Crook, Professional Center, Montgomery
Alaska	July 9-11	Fairbanks	G. O. Gould, Box 4-964, Spenard
Arizona	Apr. 25-28	Tucson	J. F. Vaughn, 2727 N. Central Ave., Phoenix
Arkansas	Apr. 8-11	Little Rock	D. M. Hamm, Box 89, Clarksville
California	Apr. 8-11	San Francisco	F. H. Romick, 518 Sutter St., San Francisco 2
S. California	Apr. 16-18	Los Angeles	C. D. Honig, 903 Crenshaw Blvd., Los Angeles 19
Colorado	Oct. 1-4	Colorado Springs	G. H. Siersma, 903 Republic Bldg., Denver 2
Connecticut	May 16, 17	Hartford	E. S. Arnold, 37 Linnard Rd., W. Hartford
Delaware	June 8, 9	Wilmington	R. Tomases, 2105 Washington St., Wilmington
Dist. of Columbia	Mar. 4-7	Washington	B. D. Mattox, 1835 Eye St., N.W., Washington 6
Florida	May 13-16	Miami Beach	L. J. Atkins, 223 Hyde Park Ave., Tampa
Georgia	Oct. 1-4	Atlanta	F. M. Butler, Jr., 307 Southern United Bldg., Macon
Hawaii	June 24-28	Honolulu	J. H. Dawe, 291 Alexander Young Bldg., Honolulu 13
Idaho	Sept. 4-6	Sun Valley	L. L. Nissen, 4th St. and Boulevard, Idaho Falls
Illinois	May 7-9	Springfield	P. W. Clopper, 632 Jefferson Bldg., Peoria
Indiana	May 20-23	Indianapolis	C. L. Howell, 1012 Hume Mansur Bldg., Indianapolis 4
Iowa	May 7-9	Des Moines	H. N. Hake, 639 Insurance Exchange Bldg., Des Moines 9
Kansas	May 6-9	Topeka	F. A. Richmond, Brotherhood Bldg., Kansas City 1
Kentucky	Apr. 1-4	Louisville	A. B. Coxwell, Jr., 2208 Dundee Rd., Louisville 5
Louisiana	May 9-12	Baton Rouge	J. S. Bernhard, 231 Atkins Ave., Shreveport 26
Maine	June 14-16	Rockland	S. M. Gower, 6 Coburn Ave., Skowhegan
Maryland	May 6-9	Baltimore	W. Schunick, 19 Medical Arts Bldg., Baltimore 1
Massachusetts	Apr. 29-May 2	Boston	H. E. Tingley, 227 Commonwealth Ave., Boston
Michigan	Apr. 9-11	Grand Rapids	K. J. Ryan, 901 Welch Blvd., Flint
Minnesota	Apr. 2-4	St. Paul	C. V. E. Cassel, 2236 Marshall Ave., St. Paul 4W
Mississippi	June 17-20	Biloxi	M. C. O'Keefe, Medical Arts Bldg., Jackson 2
Missouri	Apr. 22-25	St. Louis	E. D. Suggett, 101 W. High St., Jefferson City
Montana	May 3-5	Billings	R. C. Ritter, 28 N. Black St., Bozeman
Nebraska	Apr. 30-May 2	Omaha	F. A. Pierson, Federal Securities Bldg., Lincoln
Nevada	June 17-19	Lake Tahoe	O. M. Seifert, 821 Ryland Ave., Reno
New Hampshire	June 17-19	Whitefield	F. E. Williams, 517 Milton St., Manchester
New Jersey	May 20-23	Atlantic City	J. G. Carr, 407 Cooper St., Camden 2

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State	Date	Place	Secretary and Address
New Mexico	June 6-9	Santa Fe	E. P. Purtell, 2917 Santa Cruz Ave., S.E., Albuquerque
New York	May 6-10	Lake Kiamesha	C. A. Wilkie, 268 Ashland Pl., Brooklyn 17
North Carolina	May 6-9	Pinehurst	S. B. Towler, P.O. Box 11065, Raleigh
North Dakota	Sept. 17-19	Fargo	D. R. Perry, Box 866, Bismarck
Ohio	Nov. 5-8	Columbus	E. G. Jones, 185 E. State St., Columbus
Oklahoma	Apr. 8-11	Oklahoma City	W. C. Hopkins, 210 Plaza Court Bldg., Oklahoma City
Oregon	May 7-10	Portland	T. D. Holder, Selling Bldg., Portland
Panama C. Z.	May 26	Balboa	J. K. McDonald, P.O. Box 1417, Balboa
Pennsylvania	May 21-23	Wernersville	I. Sissman, 217 State St., Harrisburg
Puerto Rico	Oct. 21-23	San Juan	R. Gonzalez R., Box 10452, Caparra Heights
Rhode Island	Jan. 14	Providence	E. Z. Radlo, 188 Main St., Pawtucket
South Carolina	June 3-6	Myrtle Beach	J. E. Wallace, 1506 Gregg St., Columbia
South Dakota	May 13-15	Yankton	R. E. Decker, 2909 Poplar Dr., Sioux Falls
Tennessee	May 6-10	Chattanooga	J. J. Vaughn, Jr., 210 23rd Ave., N., Nashville 5
Texas	Apr. 29-May 2	Dallas	C. A. McMurray, 3707 Gaston Ave., Dallas 10
Utah			R. C. Dalgleish, 1554 Princeton Ave., Salt Lake City
Vermont			E. C. Woods, 128 Merchants Row, Rutland
Virginia	Apr. 29-May 2	Richmond	M. E. Henderson, Shenandoah Bldg., Roanoke 11
Washington	June 24-28	Seattle	R. V. Tucker, 417 Grosvenor House, 500 Wall St., Seattle 1
West Virginia	July 29-Aug. 1	White Sulphur Springs	P. H. Loflin, 109½ E. Main St., Beckley
Wisconsin	Apr. 30-May 2	Milwaukee	C. J. Baumann, Jr., 704 W. Wisconsin Ave. Milwaukee
Wyoming	June	Worland	T. J. Drew, State Office Bldg., Cheyenne

MEETINGS OF STATE BOARDS OF DENTAL EXAMINERS

State	Date	Place	Secretary and Address
Alabama	June 24-30* June 25†	Birmingham	W. L. Smith, 524 Chestnut St., Gadsden
Alaska			J. E. Miller, 1000 Fireweed Lane, Anchorage
Arizona			R. K. Trueblood, 1611 N. Second Ave., Glendale
Arkansas	June 17-22*†	Little Rock	G. Cone, 113 S. Pecan St., Osceola
California			T. R. Flinn, 1021 O St., Rm. A-597, Sacramento 14
Colorado			J. E. Cummings, 903 Republic Bldg., Denver 2
Connecticut			M. J. Zazzaro, 99 Pratt St., Hartford 3
Delaware			J. F. Maguire, 1200 N. Van Buren St., Wilmington
Dist. of Columbia			J. A. Madden, 1740 Massachusetts Ave., N.W., Washington 11
Florida			R. P. Taylor, Jr., P.O. Box 2913, Jacksonville 3
Georgia	June 4-6*†‡		T. A. Boone, 401 Southern United Bldg., Macon
Hawaii			R. M. Gibson, Alexander Young Bldg., Honolulu
Idaho			W. M. Smith, 305 Fort St., Boise
Illinois			R. I. Humphrey, 185 N. Wabash Ave., Chicago
Indiana	Nov. 13-16*†	Indianapolis	C. A. Frech, Gary National Bank Bldg., Gary
Iowa	June 4-7*‡ June 4, 6†‡		P. A. Hahn, Farmers & Merchants Bank Bldg., Burlington
Kansas	Jan. 22-24 June 4-6	Kansas City, Mo.	E. F. Cavin, 119 W. Eighth, La Crosse
Kentucky			F. W. Jordan, 2208 Dundee Rd., Louisville
Louisiana			A. R. deNux, 617 N. Monroe St., Marksville
Maine			A. H. Garcelon, 133 State St., Augusta
Maryland	Nov. 6-8	Baltimore	F. J. Bryce, 303 Granville Dr., Silver Spring
Massachusetts			R. R. Racicot, 33 State House, Boston
Michigan	June 21-27*† June 10-16*†	Ann Arbor	J. L. Champagne, 3714 W. McN'chols Rd., Detroit 21
Minnesota			E. A. Nelson, 2236 Marshall Ave., St. Paul 4W
Mississippi			C. V. Pettey, Jr., Box 387, Magnolia

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State	*Date*	*Place*	*Secretary and Address*
Missouri	Oct. 26-28* Oct. 30, 31* Oct. 26, 30, 31†	St. Louis	R. R. Rhoades, Central Trust Bldg., Jefferson City
Montana			E. A. Cogley, Medical Arts Bldg., Great Falls
Nebraska			H. E. Weber, Stuart Bldg., Lincoln
Nevada	Dec. 11	Las Vegas	R. Whitehead, P. O. Box 1547, Reno
New Hampshire			L. U. Bergeron, 211 High St., Somersworth
New Jersey	Nov. 27, 28* Nov. 29* Nov. 28†	Philadelphia Trenton Philadelphia	C. J. Schweikhardt, 150 E. State St., Trenton 8
New Mexico			G. D. Hastain, Box 1007, Clovis
New York	Nov. 30, Dec. 1 Dec. 5-8	New York Buffalo New York Albany Syracuse Buffalo	D. F. Wallace, University of the State of New York, State Education Department, Division of Professional Education Albany 1
North Carolina			J. H. Guion, Doctors Bldg., Charlotte 7
North Dakota	July 9-13	Fargo	R. L. Bork, Williston
Ohio	Sept. 18-22*†	Columbus	D. E. Bowers, 322 E. State St., Columbus 15
Oklahoma			W. H. Stephens, Plaza Court Bldg., Oklahoma City
Oregon			C. Wheeler, Medical Arts Bldg., Portland
Pennsylvania	Dec. 6, 7* Dec. 6†	Philadelphia	P. Swanson, 8111 Jenkins Arcade, Pittsburgh
Puerto Rico			J. Mercado C., Comercio St., #452, San Juan
Rhode Island			A. E. Turcone, 298 Broadway, Providence
South Carolina			W. J. Brockington, 2827 Millwood Ave., Columbia 1
South Dakota			W. P. Powell, Box 409, Vermillion
Tennessee	Dec. 13-16	Memphis	C. R. Aita, Bennie-Dillon Bldg., Nashville
Texas	Sept. 27- Oct. 1*†	Dallas	R. T. Weber, Capital National Bank Bldg., Austin 16
Utah			M. O. Hutchins, 230 E. Tabernacle, St. George
Vermont			B. S. Pinney, 215 Pearl St., Burlington
Virginia	June 11-16* June 13, 14†	Richmond	J. M. Hughes, Medical Arts Bldg., Richmond
Washington	Jan. 15-18‡		G. J. Chatalas, Stimson Bldg., Seattle
West Virginia	June 18-20* June 19, 20†	Morgantown	A. B. Drake, 1355 Fourth Ave., Huntington
Wisconsin	Jan. 8-11‡ June 4-7‡		A. H. Clark, 794 N. Jefferson St., Milwaukee 2
Wyoming			W. J. Ryan, Boyd Bldg., Cheyenne

**Dental examination. †Dental hygiene examination. ‡Write to secretary of dental examining board for information on locations of examinations. ††Hygienist examination at any time.*
Most states require applications to be in 30 days prior to examination date.

NATIONAL EXAMINATIONS

Name	*Date*	*Place*	*Secretary and Address*
American Board of Dental Public Health	Oct. 12, 13	Philadelphia	D. J. Galagan, Divn. of Dental Public Health, PHS, Dept. of Health, Education and Welfare, Washington, D.C.
American Board of Oral Pathology	Dec. 9, 10		W. G. Shafer, Indiana University, School of Dentistry, 1121 W. Michigan St., Indianapolis 2
American Board of Oral Surgery	Dec. 4 Mar. 24-27	Chicago	L. M. FitzGerald, Roshek Bldg., Dubuque, Iowa
American Board of Orthodontics	Apr. 23-28	Los Angeles	A. W. Moore, University of Washington, School of Dentistry, Seattle 5
American Board of Pedodontics	Oct. 30-Nov. 2	Ann Arbor, Mich.	R. L. Ireland, College of Dentistry, University of Nebraska, Lincoln 8, Neb.
American Board of Periodontology			B. O. A. Thomas, 668 Homer Ave., Palo Alto, Calif.
American Board of Prosthodontics			C. H. Jamieson, David Whitney Bldg., Detroit 26
Council on Dental Education, Dental Aptitude Tests	Oct. 6, 7 Jan. 5, 6 Apr. 27, 28		B. F. Miller III, Acting Secretary, 222 E. Superior St., Chicago 11
National Board of Dental Examiners	Dec. 4, 5		Grace Parkin, 222 East Superior St., Chicago 11

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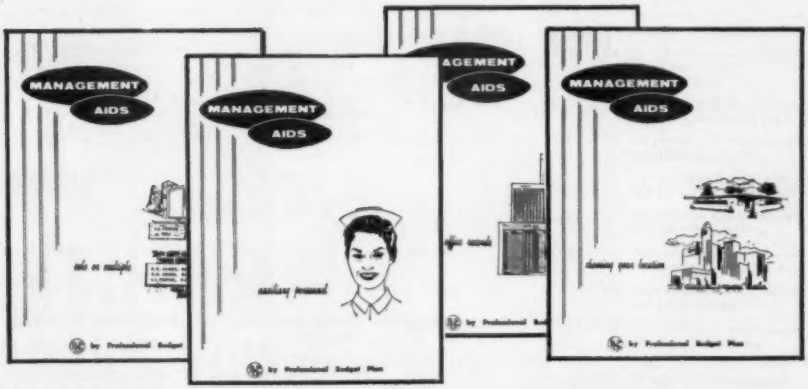

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MEETINGS OF OTHER ORGANIZATIONS

Name	*Date*	*Place*	*Secretary or Chairman and Address*
Academy of General Dentistry	Oct. 16-19	Philadelphia	A. L. Knab, 8500 Stony Island Ave., Chicago 17
Academy of Oral Dynamics	Oct. 15 Dec. 3		J. T. McSweeney, 140 E. 80th St., New York 21
American Academy of Dental Medicine	Dec. 3	New York	G. F. Clarke, 554 Franklin St., Melrose 76, Mass.
American Academy of Gold Foil Operators	Oct. 11-13	Philadelphia	C. C. Latham, P.O. Box 266, Coronado, Calif.
American Academy of the History of Dentistry	Oct. 13	Philadelphia	M. B. Asbell, 25 Haddon Ave., Camden, N.J.
American Academy of Implant Dentures	Oct. 12-15	Philadephia	A. N. Cranin, 2120 Ocean Ave., Brooklyn 29
American Academy of Maxillofacial Prosthetics	Oct. 11-13	Philadelphia	M. C. Cleaver, 2330 Linwood Ave., Coytesville, Fort Lee, N.J.
American Academy of Oral Roentgenology	Oct. 14, 15	Philadelphia	T. S. Grant, University of California Medical Center, San Francisco 22
American Academy of Periodontology	Oct. 20-25	Bermuda Cruise	C. E. Chamberlain, 1101 N. North St., Peoria, Ill.
American Academy of Restorative Dentistry	Feb. 17, 18	Chicago	W. Branstad, Lowry Medical Arts Bldg., St. Paul 2
American Association of Dental Editors	Oct. 14	Philadelphia	E. M. Ebert, 10058 Ewing Ave., Chicago
American Association of Dental Examiners	Oct. 13, 14	Philadelphia	C. J. Schweikhardt, 20 Durand Rd., Maplewood, N.J.
American Association of Dental Schools	Mar. 18-21	St. Louis	R. Sullens, 840 N. Lake Shore Dr., Chicago 11
American Association of Public Health Dentists	Oct. 14	Philadelphia	A. H. Trithart, Montana State Board of Health, Helena
American College of Dentists	Oct. 14, 15	Philadelphia	O. W. Brandhorst, 4236 Lindell Blvd., St. Louis
American Dental Assistants Association	Oct. 16-19	Philadelphia	Mrs. E. Troutman, First National Bank Bldg., La Porte, Ind.
American Dental Hygienists' Association	Oct. 16-19	Philadelphia	M. E. Swanson, 100 E. Ohio St., Chicago 11
American Dental Society of Anesthesiology	Oct. 13-15	New York	H. A. Sultz, 1275 Delaware Ave., Buffalo 9
American Denture Society	Oct. 13, 14	Philadelphia	V. L. Steffel, 19 W. Fifth Ave., Columbus, Ohio
American Institute of Oral Biology	Nov. 6-10	Palm Springs, Calif.	M. L. Meyer, 2240 Channing Way, Berkeley 4, Calif.
American Public Health Association, Dental Health Section	Nov. 13-17	Detroit	D. F. Striffler, New Mexico Dept. of Public Health, 408 Galisteo St., Santa Fe
American Society for the Advancement of General Anesthesia in Dentistry	Oct. 23	New York	M. Balaban, 161 W. 54th St., New York
American Society of Dentistry for Children	Oct. 13-15	Philadelphia	W. O. Young, 120 N. Capitol Blvd., Boise, Idaho
American Society of Oral Surgeons	Oct. 7-13	Bermuda Cruise	D. C. Trexler, 840 N. Lake Shore Dr., Chicago 11
Armed Forces Dental Officers Association	Oct. 15, 16	Philadelphia	W. Z. Kling, Medical Arts Bldg., San Antonio, Texas
Asian-Pacific Dental Conference (Third)	Oct. 17-22	Tokyo, Japan	H. Kawamura, Japan Dental Association, 4 Chome, Kudan, Chiyodaku, Tokyo, Japan
Association of American Women Dentists	Oct. 16	Philadelphia	J. Palancia, 1527 W. Passyunk Ave., Philadelphia
Austrian Dental Society, Centennial Jubilee Congress	Nov. 14-18	Vienna	S. Loos, Weihburggasse 10-12, Vienna 1, Austria
Central America and Panama Dental Federation (Fifth Congress)	Jan. 21-26	Panama	A. H. Berguido, Apartado 4115, Panama, Republic of Panama

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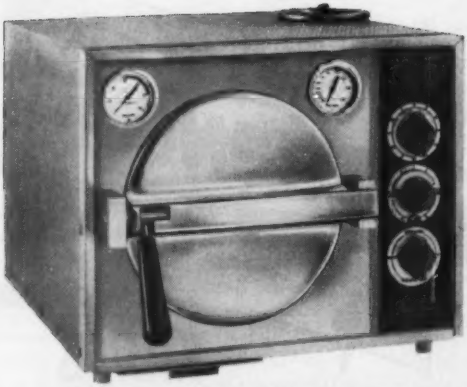
Chicago Dental Society	Feb. 18-21	Chicago	K. S. Richardson, 30 N. Michigan Ave., Chicago
Congrès de L'Entente Odontologique	Nov. 20-26	Paris, France	J. L. Dephilippe, 39 Blvd. Malesherbes, Paris 8e, France
Czechoslovak Stomatologists, (Second Congress)	Sept. 12-15	Mariánské (Marienbad)	F. Urban, 26 Stomatologicka Kliniká, Karlova nám. 32, Praga 2, Czechoslovakia
Denver Dental Association Midwinter Meeting	Jan. 7-10	Denver	G. L. Ogle, Republic Bldg., Denver 2
European Orthodontic Society, (37th Congress)	Sept. 7-11	Bologna, Italy	Secretary of the Congress, via Marsili 15, Bologna, Italy
Fédération Dentaire Internationale, (50th Annual Session)	July 7-14	Cologne, Germany	G. H. Leatherman, 35 Devonshire Pl., London W.1, England U.S.A. Section, O. H. Moen, 6 Main St., Watertown, Wis.
French Congress of Stomatology (Seventeenth)	Oct. 23-28	Paris	Secrétariat, 17th Congrès Francais de Stomatologie, 20 passage Dauphine, Paris 6e, France
German Society for Dentistry, (89th Annual Meeting)	Oct. 13-15	Mainz	M. Hermann, Schlesische Strasse 18, Mainz, Germany
Greater New York Dental Meeting (Thirty-seventh)	Dec. 4-8	New York	Mrs. M. Purdy, 106-A Hotel Statler Hilton, New York 1
International Association for Dental Research	Mar. 15-18	St. Louis	J. C. Muhler, Indiana University Dental School, 1121 W. Michigan St., Indianapolis
International Dental Congress (Thirteenth)	July 7-14	Cologne, Germany	G. H. Leatherman, 35 Devonshire Pl., London W.1, England U.S.A. Section, O. H. Moen, 6 Main St., Watertown, Wis.
International Dental Congress of Uruguay-Argentina	Nov. 12-19	Montevideo, Uruguay	J. C. Turell, Av. Agraciada 1464 (P. 13), Montevideo, Uruguay
International College of Dentists	Oct. 14, 15	Philadelphia	H. O. Westerdahl, 4829 Minnetonka Blvd., Minneapolis 16
Italian Medical Dental Association, (35th Congress)	Dec. 8-12	Milan	P. Lalli, Via Bonifacio VIII, 22, Rome, Italy
Mexican Dental Association (Sixth biennial)	Nov. 19-23	Mexico City	C. J. Cornish, Sinaloa No. 9, Mexico 7, D.F.
Mid-Continent Dental Congress	Oct. 29-Nov. 1	St. Louis	J. E. Brophy, 8013 Maryland Ave., St. Louis 5
Midwest Society of Periodontology	Feb. 18	Chicago	L. Howlett, Jr., Medical Arts Bldg., Springfield, Mo.
National Association of Seventh-Day Adventist Dentists	Oct. 12-14	Philadelphia	E. M. Collins, College of Medical Evangelists, School of Dentistry, Loma Linda, Calif.
New England Dental Society	Nov. 1, 2	Boston	W. F. O'Meara, 904 Main St., Hartford, Conn.
New Orleans Dental Conference	Nov. 4-6	New Orleans	J. R. Bond, Maison Blanche Bldg., New Orleans
Northeastern Society of Orthodontists	Oct. 29-31	Rochester, N.Y.	D. Mossberg, 36 Central Park S., New York 19
Northeastern Society of Periodontists	Nov. 3	New York	I. W. Scopp, V.A. Hospital, First Ave. at E. 24th St., New York 10
Odontological Society of Western Pennsylvania	Oct. 31-Nov. 1	Pittsburgh	H. D. Butts, Jr., Jenkins Bldg., Pittsburgh 22
Peru National Dental Congress (Fifth) and First International Congress of Stomatology	Nov. 5-11	Lima	G. Roose C., Av. Pershing 155, San Isidro, Lima, Peru
Southern Academy of Oral Surgery	Mar. 25, 26	Atlanta, Ga.	T. E. Braly, Jr., Volunteer Bldg., Chattanooga, Tenn.
Thomas P. Hinman Dental Meeting, (Semi-centennial celebration)	Mar. 25-28	Atlanta, Ga.	N. Blass, 727 W. Peachtree St., N.E., Atlanta 8, Ga.
Women's Auxiliary to the American Dental Association	Oct. 16-19	Philadelphia	Mrs. G. G. Smith, 212 S. Third St., Kaysville, Utah



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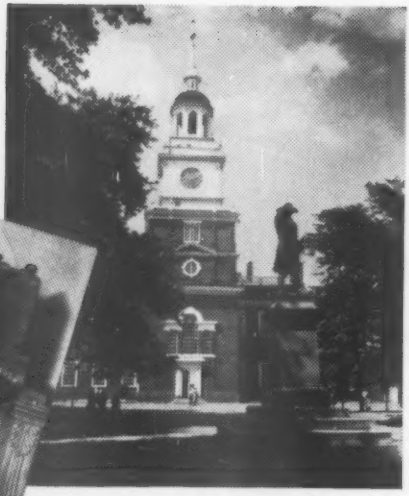

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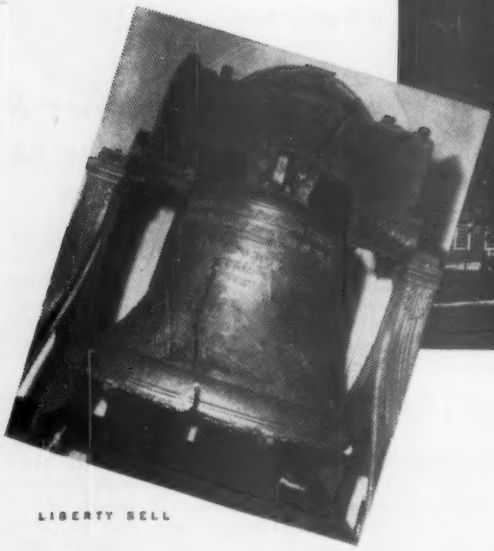

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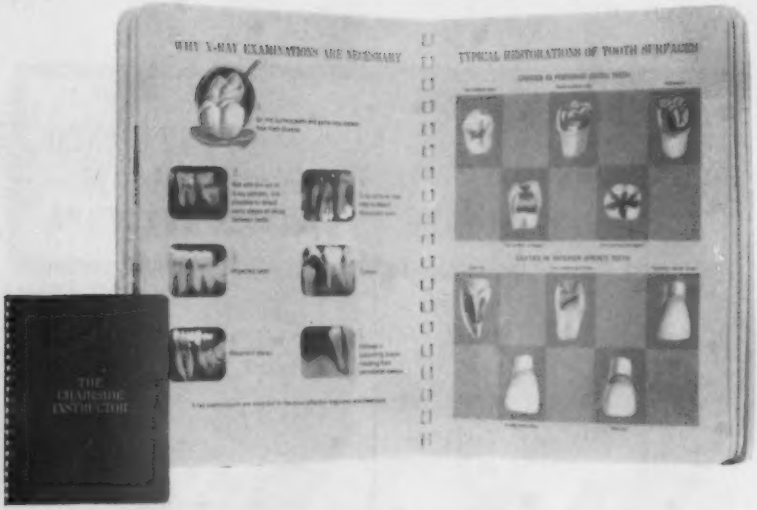

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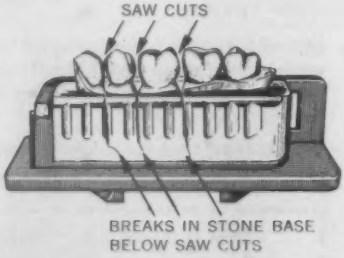

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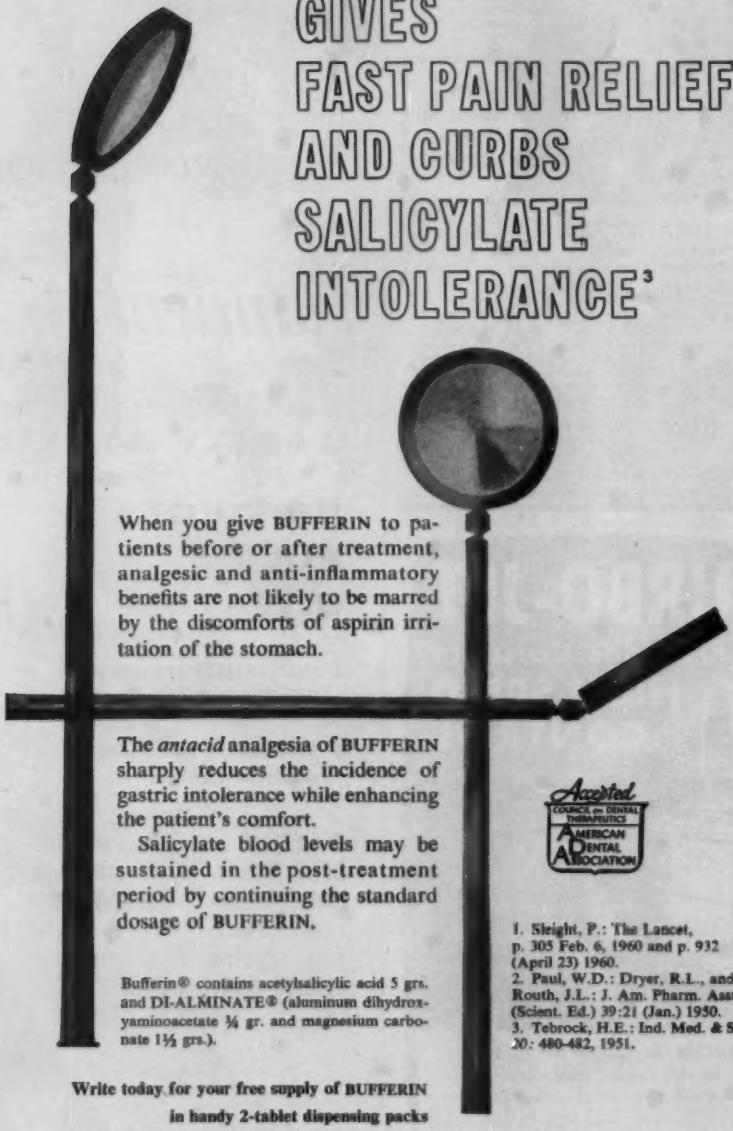

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1. Sleight, P.: The Lancet, p. 305 Feb. 6, 1960 and p. 932 (April 23) 1960.
2. Paul, W.D.: Dryer, R.L., and Routh, J.L.: J. Am. Pharm. Assn. (Scient. Ed.) 39:21 (Jan.) 1950.
3. Tebrock, H.E.: Ind. Med. & Surg. 20: 480-482, 1951.

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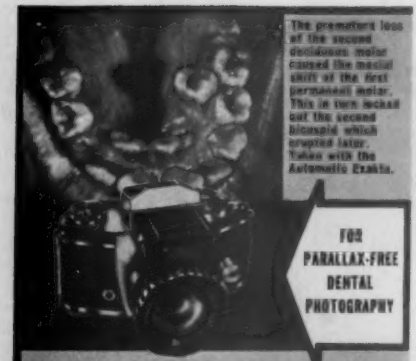
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SINCE THE NATIONAL CASUALTY COMPANY'S PLAN OF ACCIDENT AND HEALTH INSURANCE IS IN EFFECT ON A STATE SOCIETY BASIS IN NEW YORK, NEW JERSEY, CALIFORNIA, UTAH AND NEVADA, THE ASSOCIATION PLAN IS NOT AVAILABLE IN THOSE STATES.

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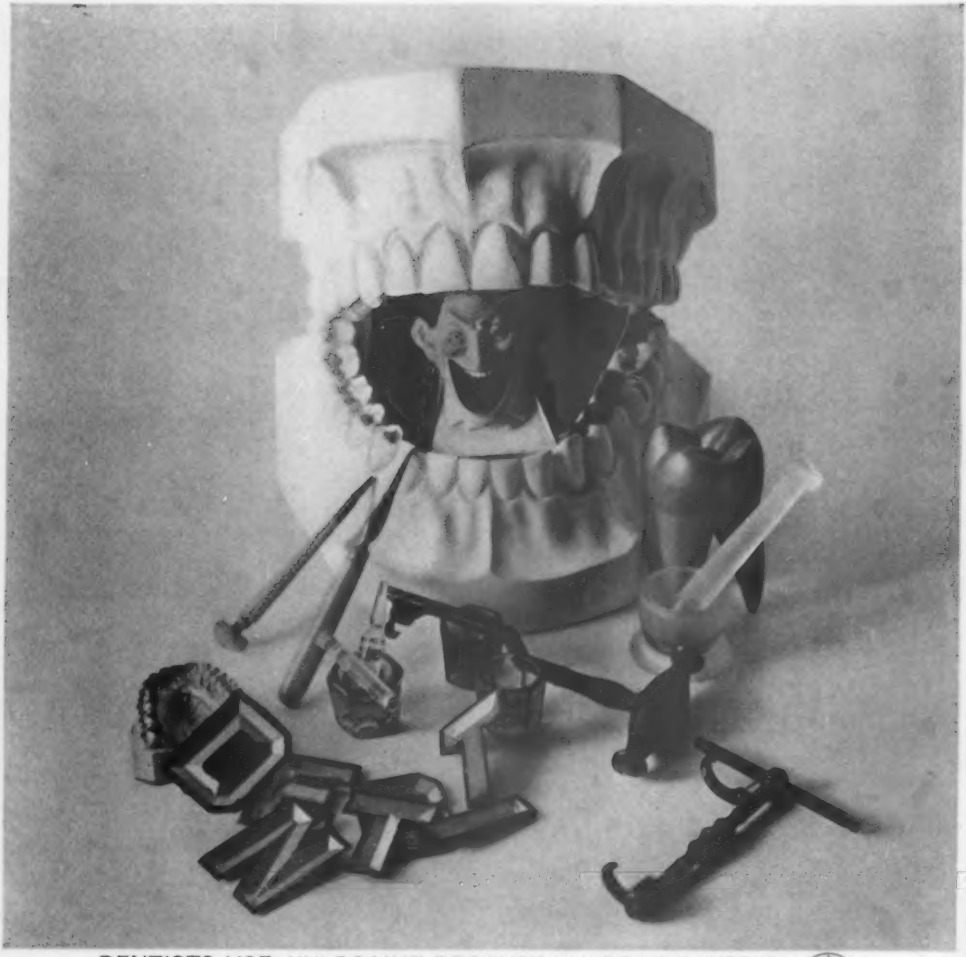

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(BRAND OF LIDOCAINE*)

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CYSTS OF THE JAW: *Third of a series*
The developmental cysts: Six cases detected radiographically

Diagnosis of developmental cysts is easily made since members of this family possess the usual radiographic features of cysts—round, oval or elliptical shape—homogeneous radiolucency—distinctively sharp borders—and hyperostotic peripheries. In addition, their lack of association with neighboring teeth, as well as their specific locations (median line, between lateral incisor and cuspid, incisive canal region, etc.), are of particular aid in identification.

While developmental cysts can be readily demonstrated, particular care should be taken to obtain radiographs of clarity and definition, thus to establish not only identity but area encompassed.

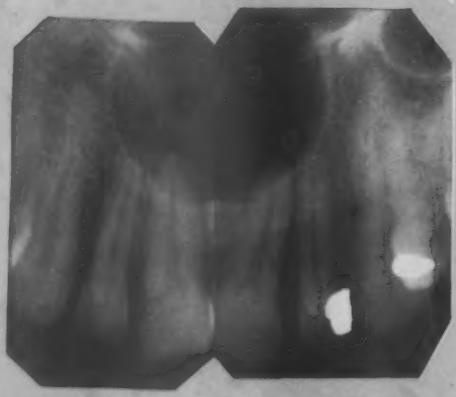

Figure 1: Median alveolar cyst. Here expansive cystic pressure has disturbed the normal positions of central incisor. (Two radiographs have been trimmed and combined to produce above graphic recording of the cyst.)

Figure 2: Median palatal cyst. Note median but more posterior location. Teeth, therefore, are in normal position.

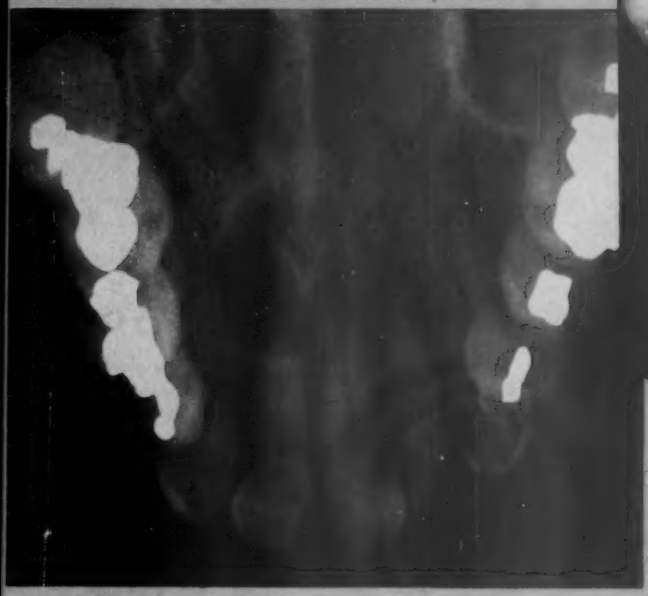

Figure 3: Median palatal cyst. Observe its elliptical shape.

Radiographs and caption material from the Division of Stomatology, School of Dental and Oral Surgery, Columbia University, New York City.

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Order Kodak dental x-ray materials from your Kodak dental dealer.

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Figure 4: Median palatal cyst. An unusually large lesion.

Figure 5: Globulo-maxillary cyst: Although appearance of lateral incisor suggests non-vitality, it is vital and normal. In this case, usual cystic features are not clearly visible.

Figure 6: Nasopalatine cyst: Note position lateral to median line. Only one vestigial duct was involved.

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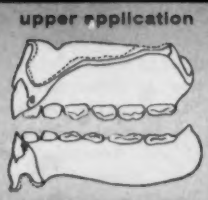

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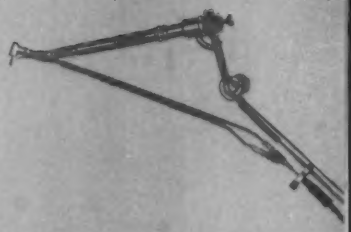

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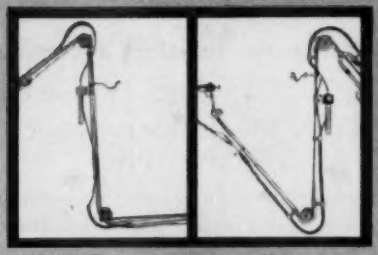

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Lubri-Kleen System

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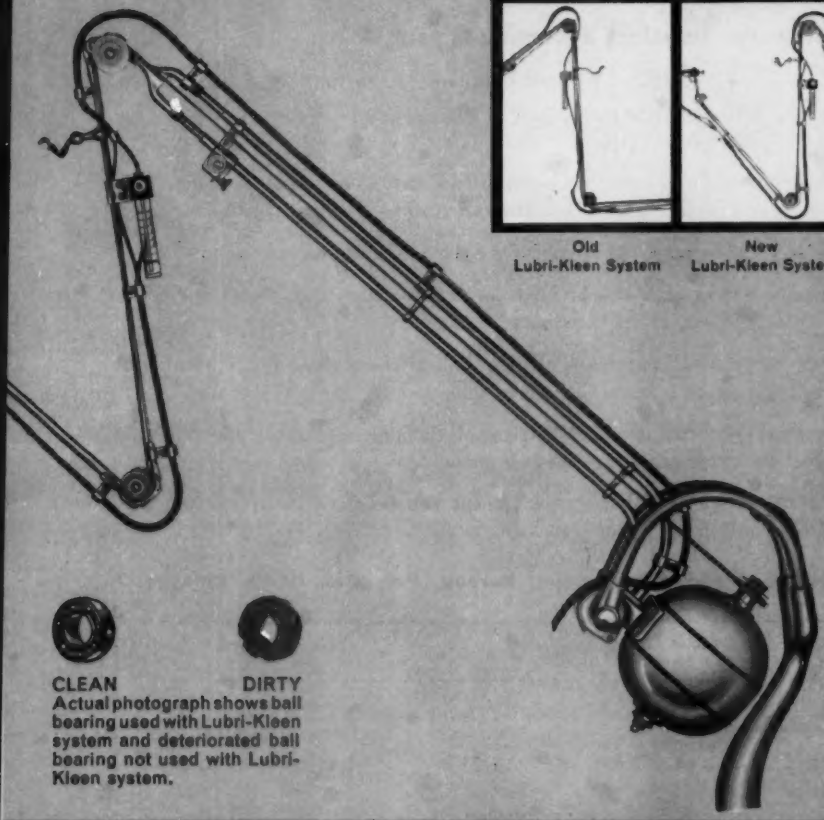

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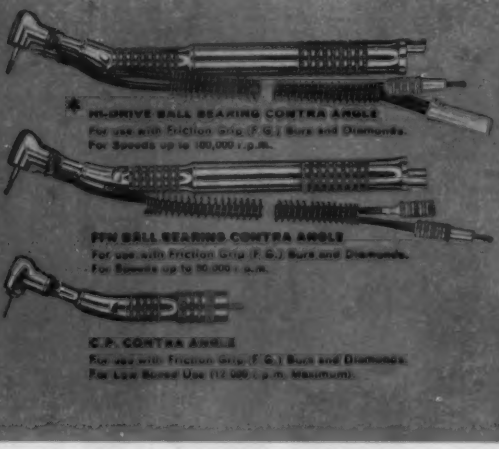

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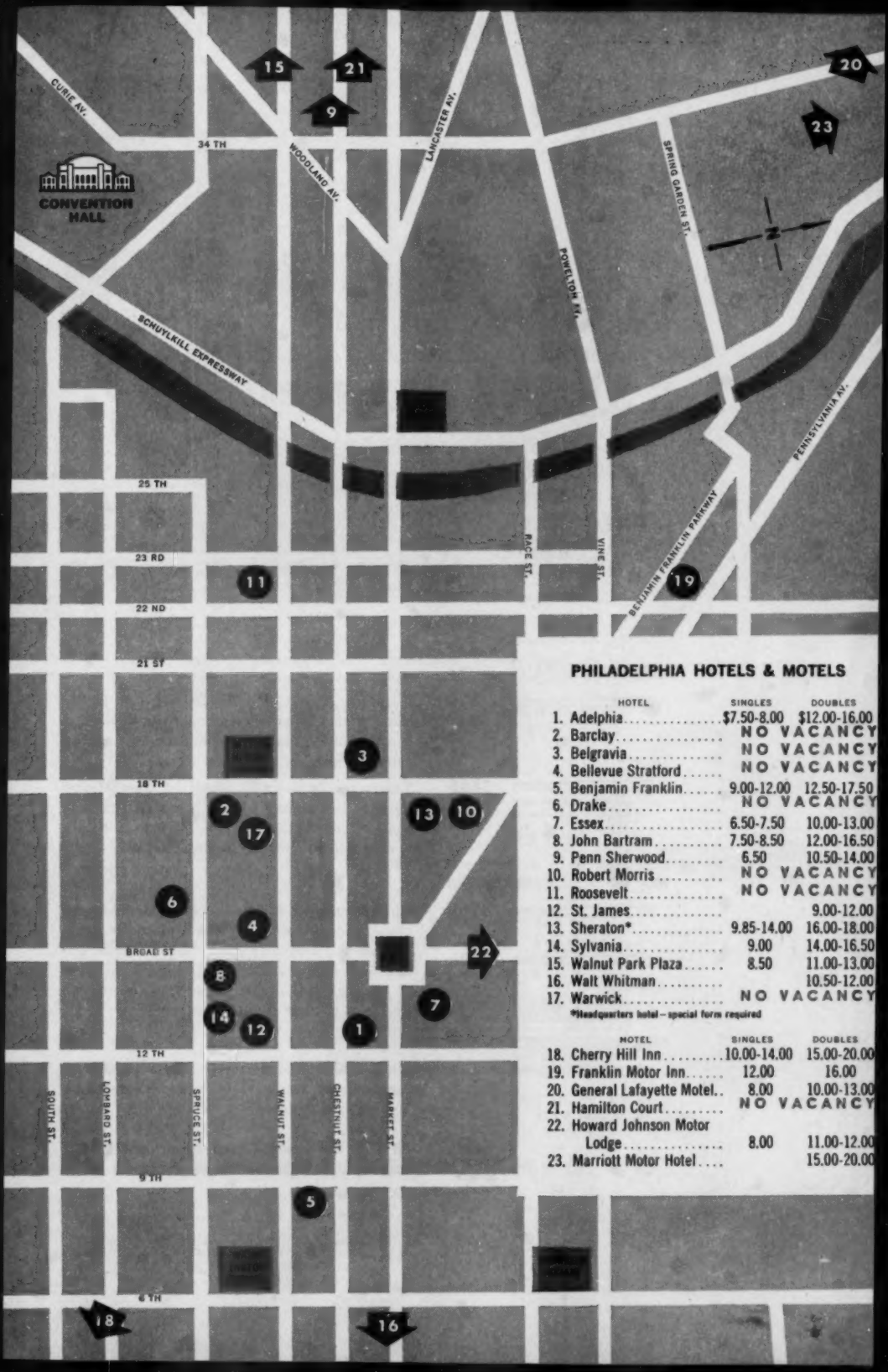

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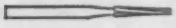
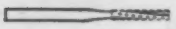
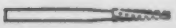


170L



558L



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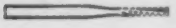

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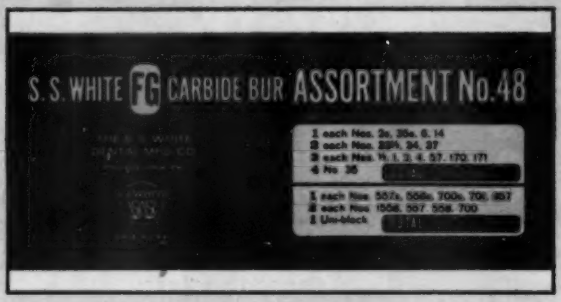

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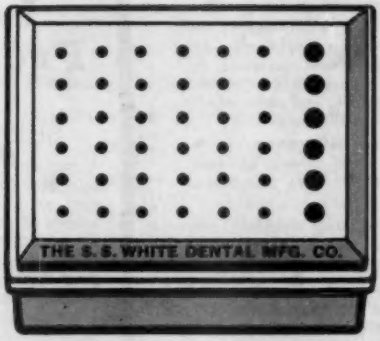

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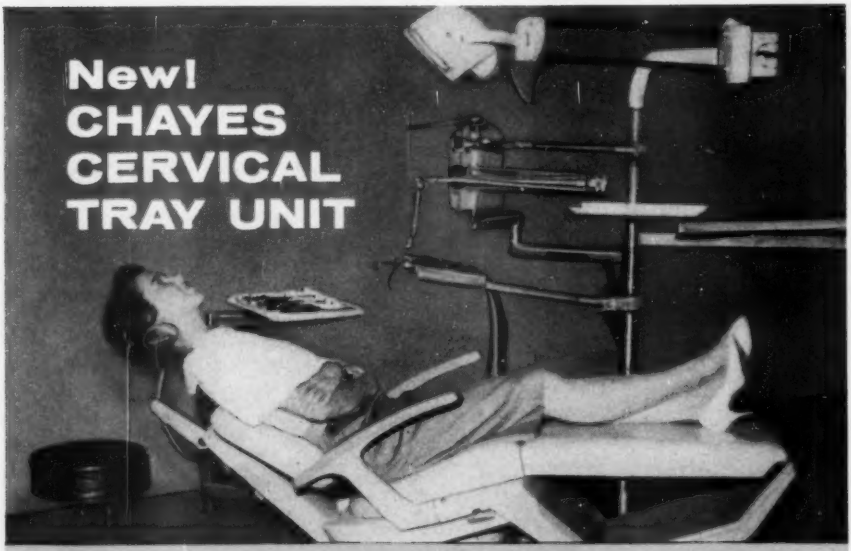

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local anesthetic, Carbocaine. New York State D.J. (to be published). 5. Wessman, T. A private practitioner's view of a local anesthetic without a vasoconstrictor. Sverig. Tandläk.-Forb. Tidn. No. 3 1959. 6. Schwarzkopf, H. A further advance within the field of odontological local anesthesia. Deutsche Zahnärztebl. No. 24 1959. 7. Ross, N., and Dobbs, E. C. A preliminary study on Carbocaine. J.A.D.S.A. 7:4 Nov. 1960.

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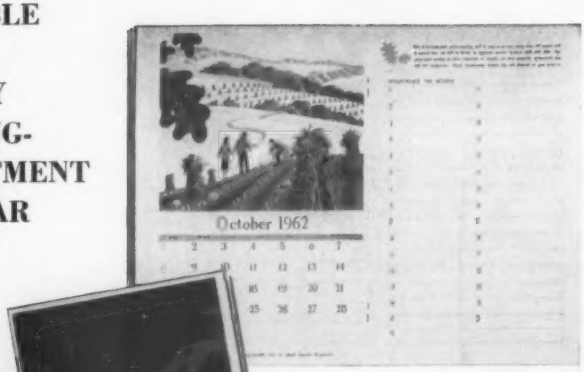

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1.) Arnold, F. A. Jr., McClure, F. J. and White, C. L.: Dental Progress 1:3-12 (October) 1960.
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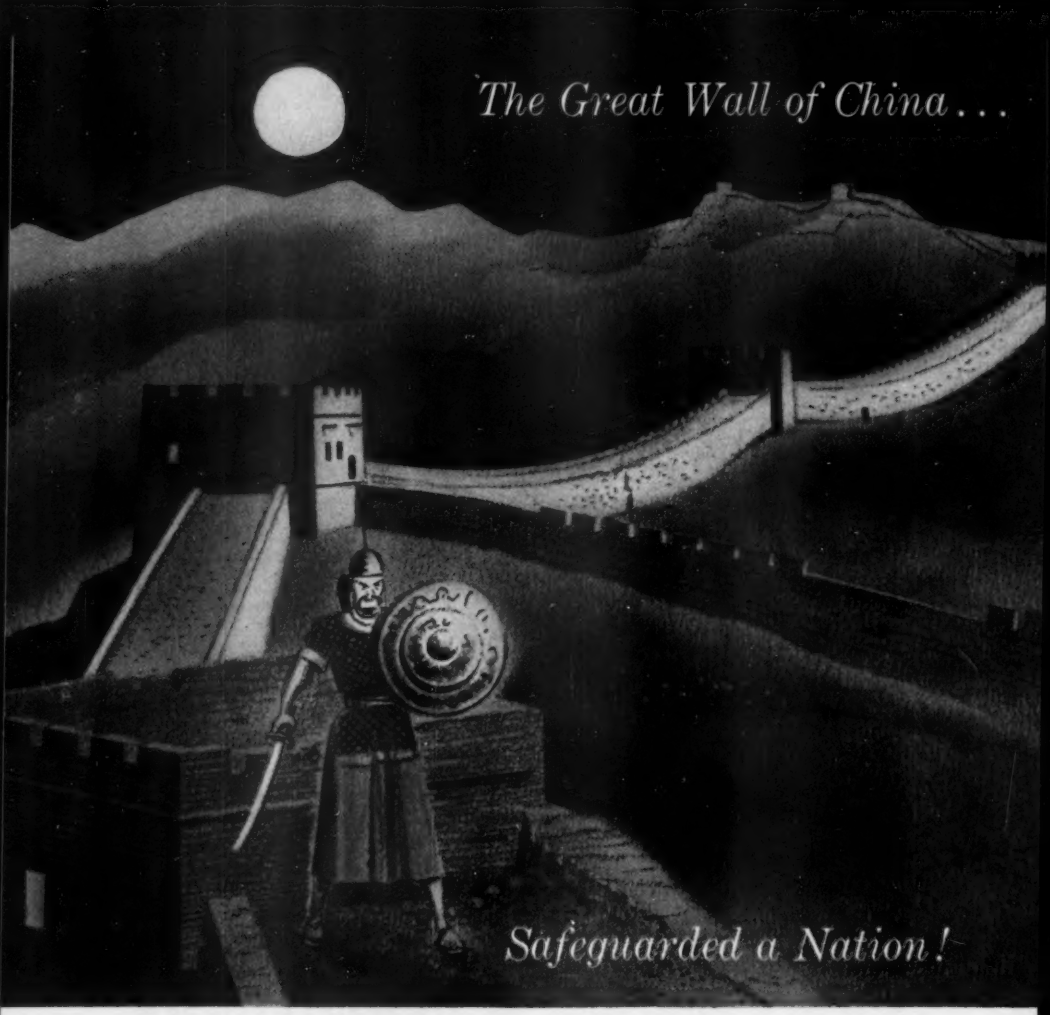

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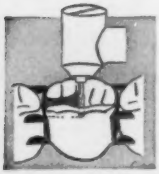

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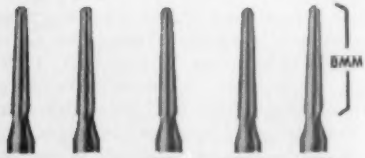

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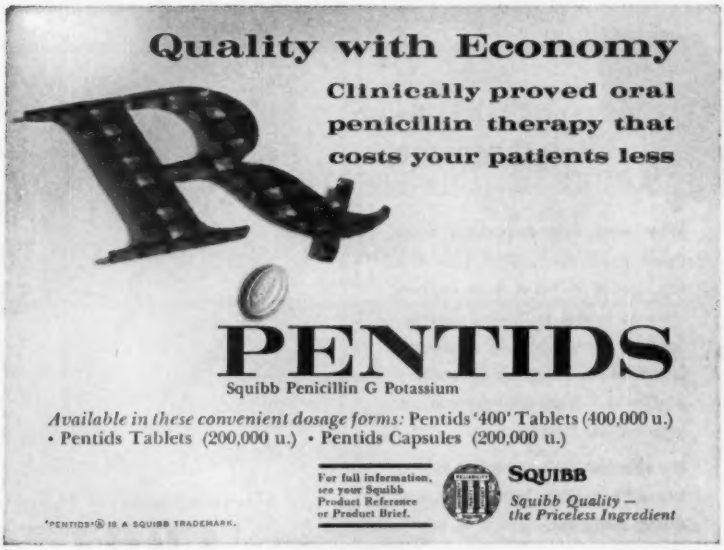
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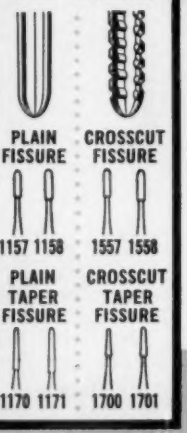

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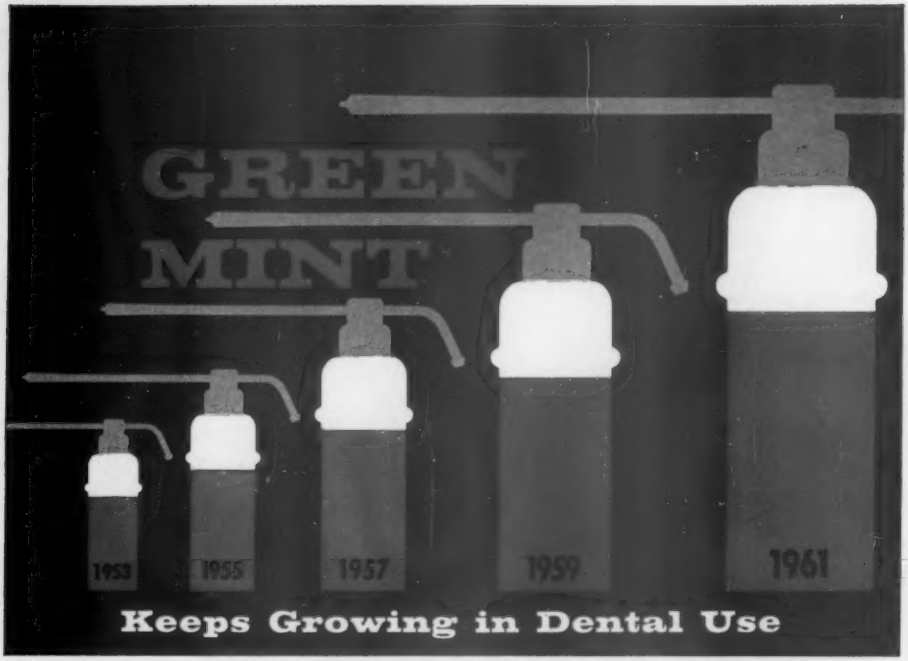

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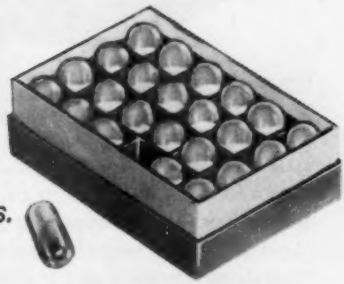

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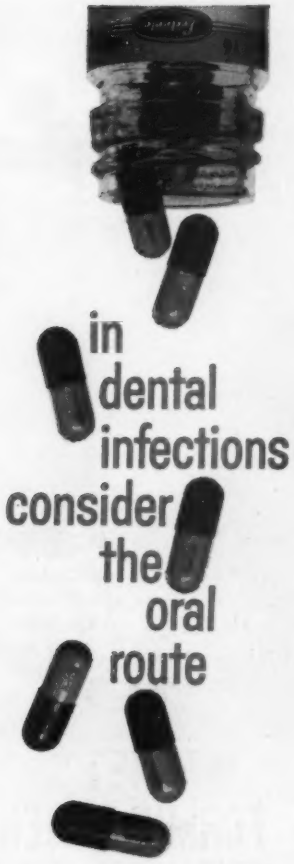

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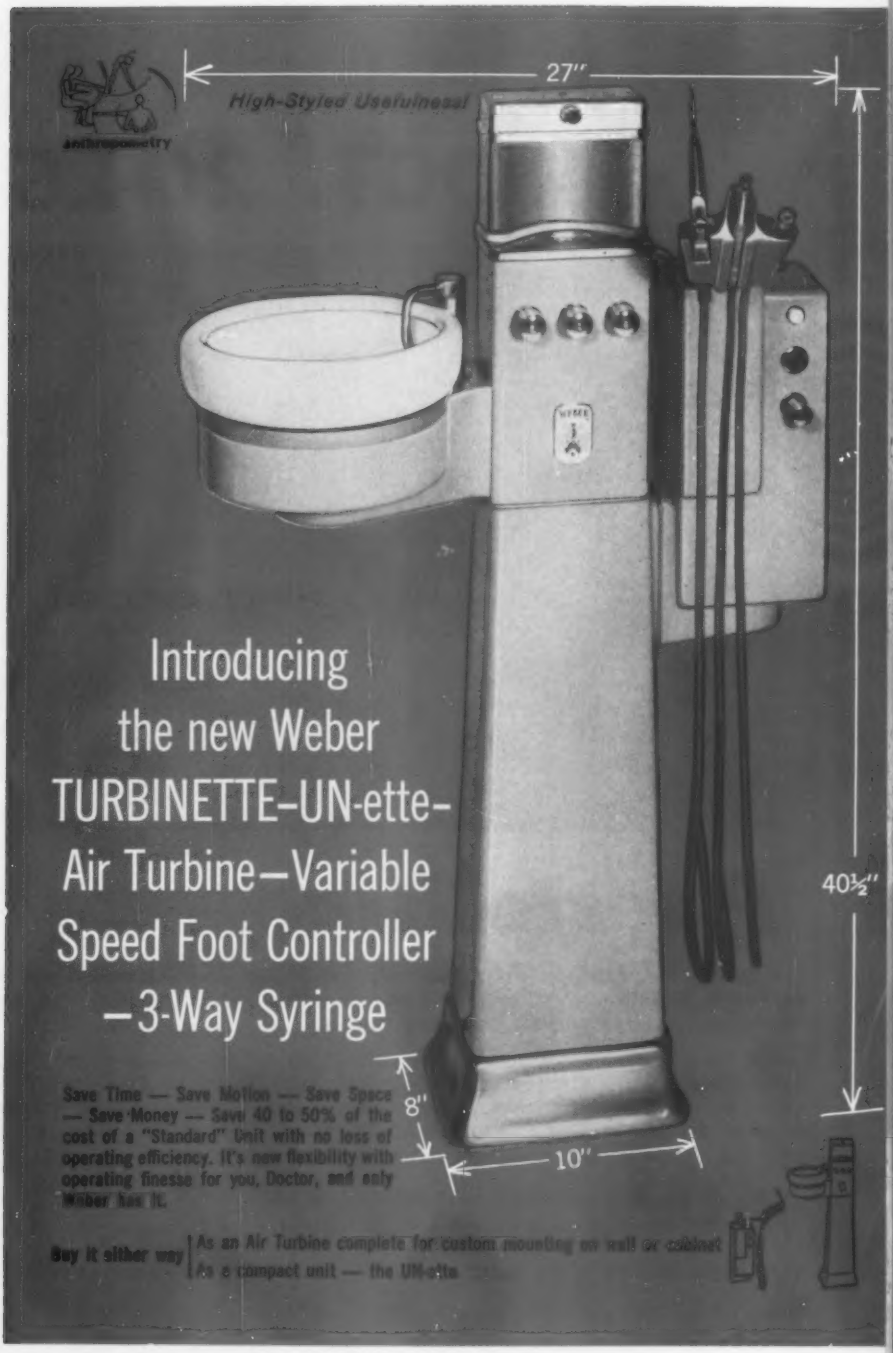
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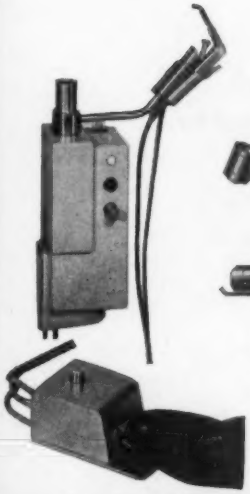

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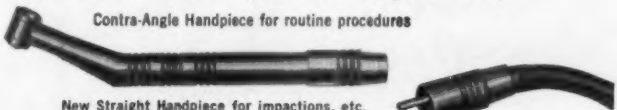

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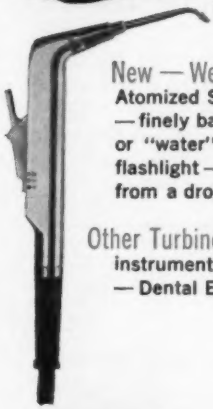
Variable Speed Foot Controller — Zero to 80 lbs. Air Pressure — Toe pressure on accelerator pedal controls bur speeds — faster speeds for rapid reduction of tooth structure — slower speeds for cutting of dentin decay removal and fine finishing. Toe button permits use of handpiece as a chip blower, using clean filtered air, free from oil contamination.

It's a UN-ette — the handsome Weber compact unit with new 20 degree OFFSET BOWL to bring instruments and controls closer to the operator. Unique instrument and bowl mounting — Syringe, Handpiece, Saliva Ejector and bowl are carried in swinging holders that afford real convenience for you and your assistant and complete accessibility to the chair for your patient.



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Other Turbinette Features: Aero-Hydro-Therm Warmer, swinging instrument holder — warm water to drinking cup — call button — Dental Engine may be adapted.

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November 28-30, 1961
REGISTRATION FEE $45

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(The Fourth Conference on Graduate Education in Oral Surgery under sponsorship of the American Society of Oral Surgeons will be held Monday, November 27 at the American Hospital Association building.)

Council on Hospital Dental Service
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222 E. Superior Street
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ARIZONA—Tucson. Available. Three-operatory office in brand new 25 unit medical building located in rapidly growing high income area. Two year old equipment available, if desired. Address A.D.A. Box No. 440.

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CALIFORNIA—For sale. Active dental practice established 12 years. Income $50,000 last year. Three Ritter equipped rooms with air turbine located in an eight unit professional center in smog free city of 15,000 on Los Angeles and Orange County line. Address A.D.A. Box No. 441.

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FLORIDA—Orlando. For sale. Modern office, three operatories, private consultation room, new equipment, etc. Selling building, practice and equipment. Make offer. Write P.O. Box 7483, Orlando, Fla.

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ILLINOIS—For rent. Well established dental office in growing community of 8,000 population, one hour from Chicago. Excellent opportunity for ambitious young dentist. Equipment for sale. Former dentist deceased. Address A.D.A. Box No. 443.

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INDIANA—Indianapolis—Northside. Service forces sale of well equipped, expandable, one-chair office and conscientiously developed five year old general practice in leased bungalow. Space shared with pediatrician. Plumbed and wired for expansion. Address A.D.A. Box No. 421.

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INDIANA—For sale. Modern dental office and high class dental practice. Must be excellent dentist. New equipment. Contact Dr. Mary Turgi, 505-507 J.M.S. Bldg., South Bend, Ind., phone CE 3-1325.

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MARYLAND—For rent. Suitable for a dentist. Five rooms and bath—heated. Two rooms facing front on main street and Rt. 13. Best location. Excellent opportunity. Reasonable rent. Contact Mr. Harold A. MacAllen, Box 276, Princess Anne, Md.

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MICHIGAN—Northern—For sale. Active practice. Ritter motor chair, Ritter unit, autoclave, GE x-ray, American cabinet (all three years old), Borden Airotor, model trimmer, etc. Owner leaving state on account of health. Address A.D.A. Box No. 444.

MICHIGAN—River Rouge—Suburb of Detroit —For sale or lease. Four operating rooms, two private offices, as well as all other required rooms. Three year old building, large parking area. Very large drawing area. Modern. Address A.D.A. Box No. 445.

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NEW JERSEY—For rent. Corner residential home-office location. Twenty minutes from Newark. High income community. Brand new fully equipped office consisting of four rooms and laboratory. Five rooms and two baths in home. Leaving for graduate school. Address A.D.A. Box No. 446.

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NEW JERSEY—For sale. Active general practice in Camden county. Two fully Ritter equipped operatories. Motor chairs, air conditioned, etc. Excellent hours. Within easy commuting distance from Philadelphia. Owner leaving state. Address A.D.A. Box No. 447.

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OHIO—For sale. Active growing general practice in Akron suburb of 14,000. Fully equipped one-chair office; second room plumbed for operatory. Contact Dr. Charles Trommer, 762 Eastland Ave., Akron, Ohio.

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OHIO—Practice and equipment for sale. Completely modern located in a prosperous, expanding residential community. 30 minutes from downtown Toledo. Only dentist in village of 1,850 with drawing area three or four times that. One operatory fully equipped, second partly equipped. Bungalow office consists of six rooms. Will lease or lease with option to buy. Air conditioning, modular cabinets, etc. Interested only in progressive man with high standards. Address A.D.A. Box No. 448.

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OREGON—For sale. Exceptional general practice in southern Oregon's beautiful Rogue River Valley. For further details write A.D.A. Box No. 425.

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TEXAS—Dallas—North of Glendale shopping center, corner Marsalis and Ann Arbor. Office space available for three or more doctors in a new clinic ready for occupancy about September 1. X-ray equipment furnished if desired. Approximately 50 car off-street parking area. Space available for hospital at later date. Residential property valued at from $10,000-$80,000. No other clinics or hospitals near this location. Doctors of dentistry, medicine, optometry, etc., general practice or specialist, may have as much space as desired and it will be arranged according to your specifications. For information call or write Dr. F. M. Dollar, 809 Vermont St., Dallas 16, Tex. Office phone WH 1-0344, residence phone FR 1-2512.

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WISCONSIN—Suburban Eau Claire. Available immediately. Young, growing practice, grossing well. Modern equipment and office. Ground floor. Little cash needed. Take over lease and equipment contract. Leaving to specialize. Address A.D.A. Box No. 450.

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CALIFORNIA—San Francisco peninsula area. Wanted. Orthodontist for group practice. Under 40 years of age, military obligation completed. Address A.D.A. Box No. 388.

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CALIFORNIA—Associate wanted for general practice in the San Jose area. Address A.D.A. Box No. 451.

CALIFORNIA—Dental associate wanted. Male or female, full time employment but no partnership. Crown and bridge work. Beverly Hills practice. Must be experienced. Address A.D.A. Box No. 452.

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MASSACHUSETTS—Associate wanted. Must be experienced. Excellent position for dentist leaving the Armed Forces. Small town in western Massachusetts. Address A.D.A. Box No. 453.

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NORTH DAKOTA—Streeter. Very good opportunity for dentist. Nearest dentist 16 miles. No other dentist closer than 28 miles. Contact Gerhart Dewald, Sec., Streeter Lions Club, Streeter, N. D.

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OREGON—Want associate in oral surgery-intravenous anesthesia. Practice and new building to right man. Give information regarding internships, residencies, boards, years of private practice, age, marital status in first letter. Address A.D.A. Box No. 454.

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A true "Space Saver" for superior efficiency and results.
A single unit for
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There is real Power and Vacuum in this "Space Saver"
May We Send You Our 1960 PRODUCTS DIRECTORY?
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WISCONSIN—Central. Orthodontist wanted to start September 1962 for a 20 month period. Formal edgewise training required. Excellent salary with percentage of gross. Modern office with two trained personnel. Present orthodontist returning to school. Address A.D.A. Box No. 429.

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Wanted. A well trained oral surgeon to practice with a well established group located in the northeastern Atlantic states. Apply to P.O. Box 760, Elberton, Ga.

HYGIENISTS

KANSAS — Wanted. Hygienist for general practice. Recall system used nine years. Former hygienist married, left. Three high schools, and state college in excellent family city of 12,500. Starting salary approximately $5,000. Contact Dr. J. M. Edmund, Jr., Hays, Kan.

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MASSACHUSETTS—Hygienist wanted for established office 30 miles north of Boston. Air conditioned. Salary $90.00 for 37 hour week. Annual paid vacation and sick leave. Annual pay increases. Address A.D.A. Box No. 455.

NEW JERSEY—Hygienist wanted. Address Dr. L. F. Reilly, 15 W. Ridgewood Ave., Ridgewood, N. J.

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Iowa graduate with eight years' general practice experience desires position in industry, research or administration. Married, 40 years old. Experienced in all phases of dentistry. Address A.D.A. Box No. 456.

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Oral surgeon, three years' approved training including good general anesthesia background, two additional years as Army oral surgeon, desires association or opportunity to locate July 1, 1962. New York license. Willing to take other Boards. Address A.D.A. Box. No. 457.

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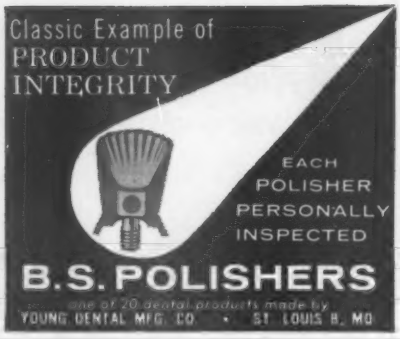

Pennsylvania licensed dentist, 27, married, completing military obligation October 1961, desires association with group or private practitioner in Greater Philadelphia area. Address A.D.A. Box No. 459.

•

Pennsylvania licensed dentist, age 43, desires to take two year university course in orthodontics. Wishes to become associated part time before and during course and full time upon completion. Address A.D.A. Box No. 458.

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by F. B. Rogers with removable filigree glass liner. Yours for adding to or opening a new account of $1,000 or more. While they last.

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Dentist, over 30 years' experience, desires position in industry, institution or other salaried position. Have general practice and cerebral palsy institution experience. Fine references, if needed. Address A.D.A. Box No. 460.

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Oliver-Irish-Wood: Labial Lingual Technique published 1940, sought for purchase. Reply to Dr. Toof A. Boone, Suite 414 Southern United Bldg., Macon, Ga., phone SHerwood 5-6965.

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Wanted. Two No. 155 Consolidated American cabinets. Write or call giving condition, color, price. Dr. Olin W. Owen, 1201 E. Morehead St., Charlotte 3, N. C.

FOR SALE

CALIFORNIA—For sale. S. S. White unit, coral, light, $125; two floor mats $25; Gomco aspirator $50; Huppert oven $20; vibrator $15. Address A.D.A. Box No. 461.

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IOWA—For sale. Ritter model E unit, ivory; Ritter model B Trident with thermo syringe, ivory; Ritter closed footboard pump chair; Pelton E & O lights on units; miscellaneous supplies and laboratory equipment from modern office of deceased dentist. Address Miss Helen Brucher, 230 Central Ave., S.E., Le Mars, Iowa.

NEW JERSEY—For sale. Clinical camera. Praktica 35 mm. coated f2.8, mounted on portable Atco unit including 110V rapid recycling stroboscopic close-up ring, dual photofloods, distance and picture identification guide. Camera demountable for use separately. Takes color or black and white. Excellent condition. Cost $373. Will sell for $250, including case with 42 s/s cheek retractors thrown in. Bengue, Inc., 2023 Kerrigan Ave., Union City, N. J.

•

OHIO—For sale. Ritter Audiac, silvertone colored. Excellent condition, eight tapes, used nine months. Address A.D.A. Box No. 462.

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PENNSYLVANIA—For sale. Two transographs, excellent condition. Priced most reasonably. Address A.D.A. Box No. 463.

INTERNATIONAL DENTAL CONGRESS

July 7-14, 1962
Cologne, Germany

Full information as to tours or independent travel is now available. Travel by ship or by air. Special planes leave July 6th from New York or Chicago. Write the undersigned direct or have your travel agent do so. Complete help given free without obligation.

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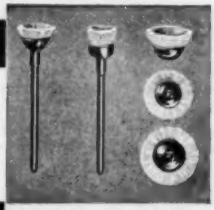

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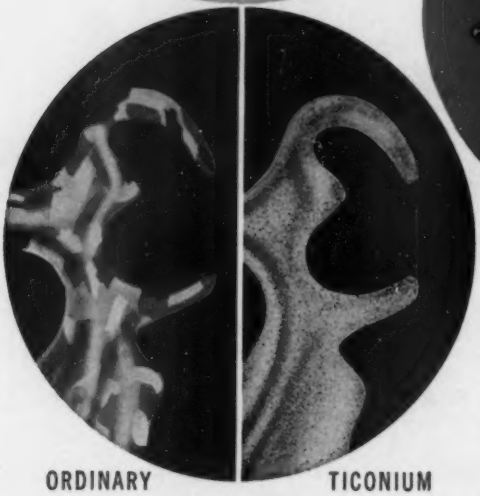

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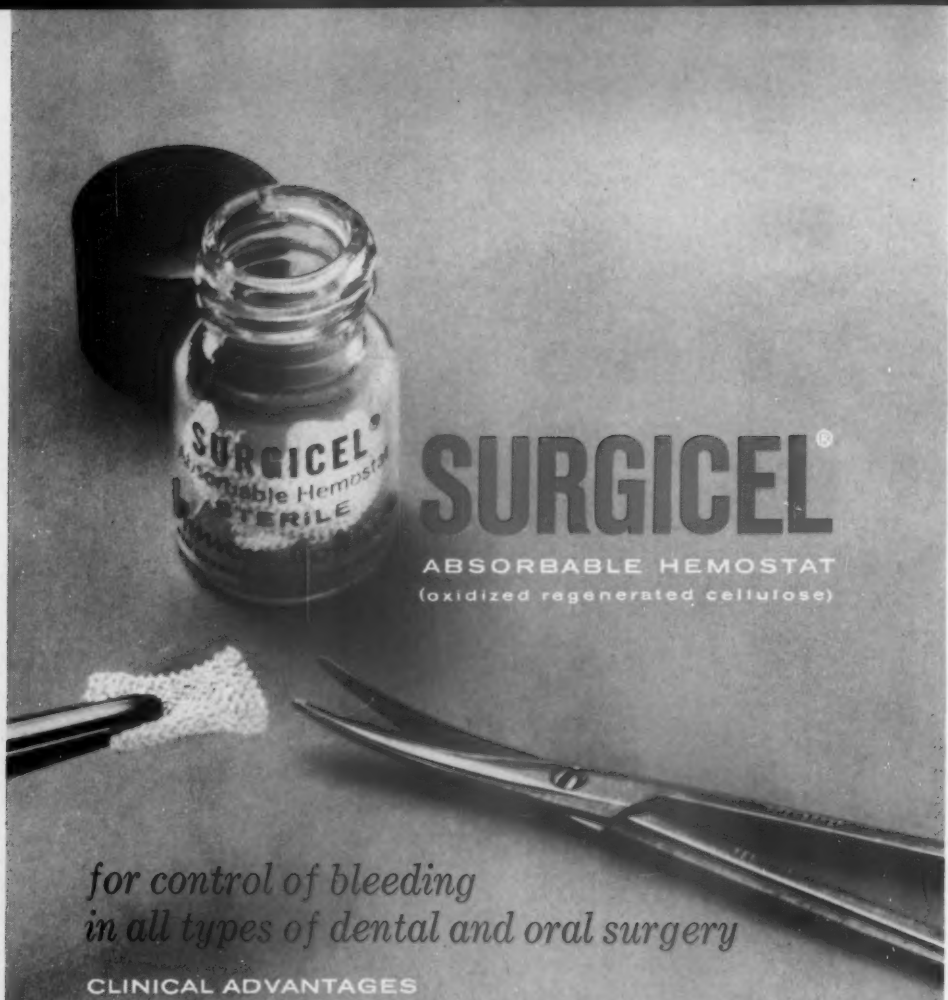

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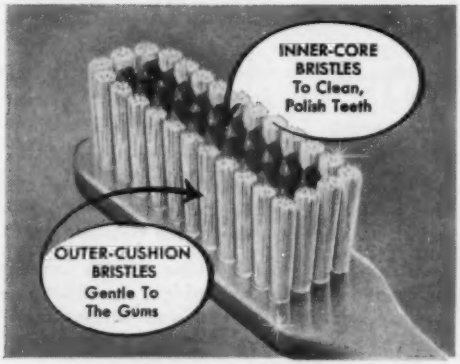

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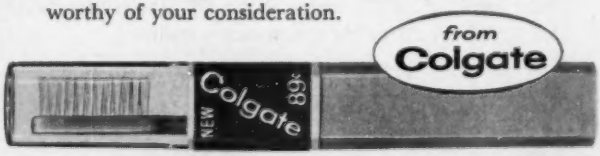

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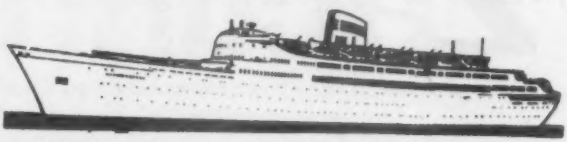

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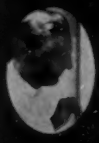

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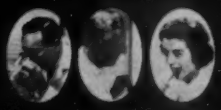

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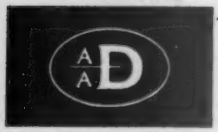

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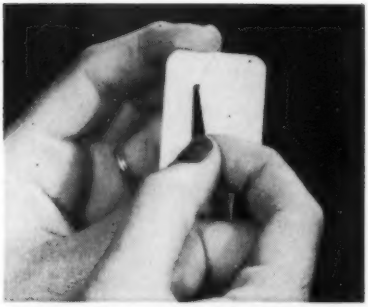

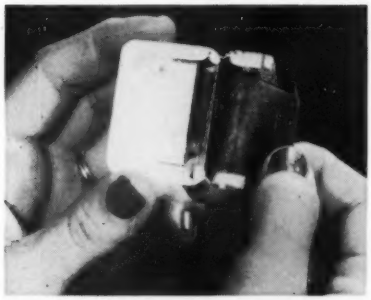

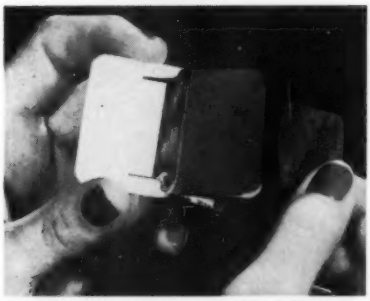

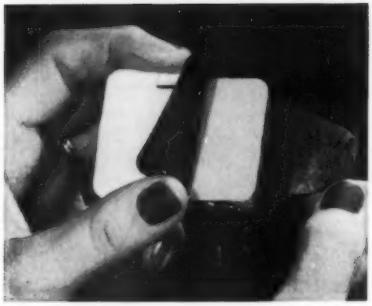

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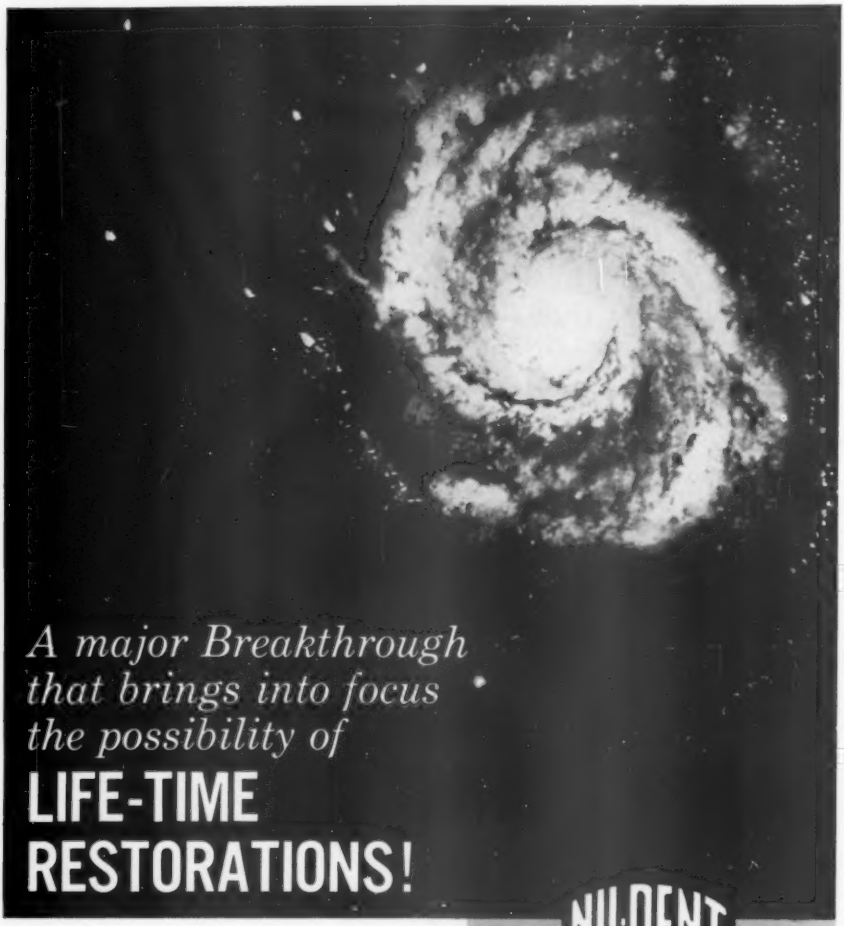

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